

SOAP

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and SANITARY CHEMICALS

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AS THE **EDITOR** SEES IT

IMPORT equalization fees on foreign fats and oils based on domestic "parity" prices as covered by a bill introduced last summer into Congress by Utah's Representative Granger, a member of the House Agriculture Committee, are dormant at the moment, according to advices from Washington, — dormant, but not dead. In short, this proposal further to tax imported soap fats has been pigeon-holed temporarily. But, its proponents have no idea of giving up their somewhat complicated plan.

There will be another session of Congress coming and they evidently feel that it would be the part of good political strategy to put on the pressure for passage of the equalization fee bill at a later date rather than now. Considerable strong opposition has developed against this proposed law and the next session of Congress apparently is held to be a more propitious time to push it. Why its advocates feel that there will be any less opposition then, they have not yet indicated.



IF anybody needs basic evidence as to why tallow, grease and many fatty oils have been in the doldrums, they have only to look at the domestic production figures for 1948-49. Eleven billion pounds of fats and oils approximate ten per cent over the original estimates of government experts. That this output constitutes overproduction under current circumstances has been the contention of leading soapers right along. But, for obvious reasons, there are those who choose to interpret the situation as being brought about chiefly by the reduced buying of inedible fats and oils by soap makers, due in part to synthetic detergent competition. Resultant legislative activity in Washington accordingly has taken on a rather definite anti-detergent and soap slant and attempts to muster the support of

powerful farm groups behind such legislation is noted.

Always it is human to blame one's ills on somebody else, and to make him pay the bill if possible. The old cry, "there ought to be a law," is still with us. All of which, in our opinion, applies aptly to the 1949 mispredicted overproduction of fats and oils. Let us hope that Congress really will examine the evidence before passing any more laws.



IDENTIFICATION of ingredients of all soap and detergent products by common names on package label or wrapper would be required under a bill introduced into Congress by Senator Guy M. Gillette of Iowa last month. The new legislation is intended to supersede an earlier amendment by Senator Gillette to the Food, Drug and Cosmetic Act which would have included only toilet soaps. Specific percentages of major ingredients, including synthetics of petroleum or other origin, would have to be stated and identified by their common names on the labels of all retail packages under the new proposed law.

Comment on this legislation, which is not altogether unexpected in the soap industry, could well parallel that on Senator Gillette's original proposal to amend the Food, Drug and Cosmetic Act. If there is need for such legislation, that need has yet to be proved. If it is based on the premise that fat and oil consumption in soap manufacture is declining, then it is based on a false premise. Testimony at the Gillette Subcommittee hearings showed this to be an assumption by certain agricultural interests not in accord with the facts.

If Senator Gillette believes that such a law could help to increase the consumption of tallow and grease in soap, or that it could act as an

effective stumbling block against the continued progress of synthetic detergents, he is in our opinion far off the beam. What it can do, however, and this deserves the widest publicity among American housewives, is to boost soap manufacturers' over-all costs and likewise *the retail price of soaps*. Not one iota of good could it do the household soap user even if she did read the labels,—but which experience has proved she steadfastly refuses to do.



NOTABLE is the exemption of soaps and detergents from the new Florida three per cent sales tax along with foodstuffs. But, this exemption just did not happen. Originally, only foods were exempted. However, presentation of a strong case in behalf of soaps and detergents by the Association of American Soap & Glycerine Producers evidently carried considerable weight. Maybe the Florida legislators, like some others we have noted in the past, did not want to go on record with a tax on cleanliness. But even though soaps and detergents have been exempted, and even though the hope exists that this action may aid further in setting a pattern for the future, the ever growing parade of new taxes the country over becomes more nauseating with each passing day. Never, it seems, are taxes repealed; always new taxes are added. Witness the endless list of "emergency taxes," some of them twenty or more years old, still riding on the statute books. When, if ever, will this parade end?



RETROACTIVE to August 27, coconut oil of *other than* Philippine origin is again subject to a five-cent per pound processing tax instead of the three-cent tax which had been in effect since early in the war. This announcement came late last month as a result of the finding that ample supplies of Philippine oil and copra are now available on the formal proclamation of the President last July 27 ending the war-period suspension of the extra two-cent tax. This ruling not only affects coconut oil and copra, but also covers the first processing in the United States of palm oil, palm kernel oil, and others of lesser importance. Soapers and other users of

coconut oil must keep suitable records to separate taxes due on the two types of oil processed. Internal Revenue monthly report Form 932 covering first processing of these oils has been revised accordingly.

Right now, the outlook for repeal or reduction of the coconut oil processing tax looks black indeed. That there is no rhyme or reason for continuing the tax is obviously ignored by the powerful so-called farm lobby. A "soak-coconut-oil" policy appears more firmly entrenched than ever. Every logical argument pointed to a full removal of this tax ten years ago, and still does. But, as long as coconut oil can be used to grind political axes, what matters logic? Just another one of the myriad of "temporary" taxes which have become permanent fixtures over the years.



SOAP wins another moral victory! New York City, which over the years has lagged far behind other progressive cities of the country in supplying soap and towels to its school children, will more than double its expenditure for this purpose in 1950 if a request by the mayor is carried out. In 1948, for the first time, the city appropriated \$100,000 "on an experimental basis" for soap and towels in the schools. This year, \$150,000 was allotted for the purpose and the proposal for 1950 is \$350,000. They tell us that this will permit all school kids to wash their hands whereas the original budget in 1948 made this possible only for one in every six. How they figure it out, we don't know, but anyway, it's an improvement.

Possibly pressure from the United Parents Association may have been a factor in this victory, particularly its demand that soap and towels be supplied to help prevent the spread of polio. And the city health commissioner hailed the action as "of great importance from a health standpoint." All this, by some scientific sticklers, might be interpreted in a sense as tarnishing slightly the moral aspects of the victory. But, not by us. We applaud it at full face value. And the kids will get the right kind of soap. We know, because we had our ears pinned back last year by the Board of Education purchasing chief for erroneously implying otherwise.

SPECIALTY SOAPS

By Milton A. Lesser

SOAP serves primarily as a detergent. However, it has a number of characteristics, which may or may not be associated with its cleansing action, that recommend its use for other purposes as well. In some cases, certain of these properties are enhanced and the soap given distinctive characteristics by the choice of raw materials. In other instances the soap is given special qualities and applications by the inclusion of substances which impart the desirable properties.

Because soap is such an extensively used product, it is not surprising that quite a large number of specialized soaps should have been developed. Over the years, some of these products have become increasingly important until now specialized soaps form an interesting, if not important, subdivision in the general soap picture. A few, like the dental soaps, have a regional importance, while others, such as the so-called obesity soaps, have more or less disappeared from the scene. From time to time, new types of specialized soaps, like the indicator soaps, make their appearance.

Some of the more important groups of specialized soaps, with subdivisions of their own, have been discussed in more or less detail in *Soap and Sanitary Chemicals*. Indicative are reviews on such products as medicated soaps (1), liquid hand soaps (2),

shampoos (3), dog soaps (4), floor soaps (5), saddle soaps (6), and dry cleaning soaps (7, 8). Among other soaps which warrant similar detailed consideration are textile soaps and hard water soaps. This leaves quite a large number of specialized soaps, which, while not important enough for individual treatment, are of considerable interest.

Deodorant Soaps

AMONG them are the deodorant soaps which have come into prominence during the last few years. People have long held the idea that various substances could be added to toilet soaps which would greatly augment their ability to destroy body odors. One approach to the problem is seen in the inclusion of sodium bicarbonate, which has gained a good reputation as a deodorant. According to Cranor's (9) patent, a toilet soap in cake form, of smooth texture, good lathering properties and with a deodorant action is made by mixing 10 to 30 per cent of sodium bicarbonate (or less than would cause crumbling of the composition) with an approximately neutral soap.

Another approach to the production of deodorant soaps, and one that is currently attracting considerable attention, is the incorporation of a suitable germicide. As noted by McCord (10), at the present time some opinion runs to the view that any

sweat may become odorous through prompt decomposition from bacterial action. While granting that there is some validity to this view, he points out that the situation is not fully explained on this basis. Some odors, says this authority, may be peculiarly related to the emotional state and not to bacterial decomposition.

It is recognized that ordinary washing and bathing tends to remove body bacteria and odors. However, there are many who believe that a better and more persistent deodorizing effect can be obtained through the use of a soap containing a germicide. Evidence to back up this opinion is provided in the studies made with soaps containing the germicide known commercially as compound "G-11" (Sindar Corp., New York) (11, 12). Last year the term hexachlorophene was accepted (13) as the generic or common name for "G-11." The chemical designation for this germicide is *bis*—(2-hydroxy-3, 5, 6-trichlorophenyl) methane.

A relatively nontoxic compound, it has been found (14) that two per cent of "G-11" incorporated in a toilet soap was nonirritating and nonsensitizing. As reported by Gump (15), the type of soap used has no significant influence on the bactericidal action of "G-11," with the possible exception that the soap must contain a fairly large amount of coconut oil fatty acids in order to be active against certain organisms. Other properties of the soap, such as pH, lathering power, odor or detergency are not affected by the presence of the germicide.

Hexachlorophene or "G-11" may be incorporated in a bar soap during the manufacturing process. At least two such products, marketed primarily on the basis of an antibacterial deodorant action, are available commercially. The label of one of these products says, in part, that when used exclusively and daily, the antiseptic ingredient in the soap "substantially reduces the number of skin bacteria which are a chief cause of offensive body odor."

This statement is in line with the data supplied in a recent review (16) on "G-11." Here it is stated

that the frequent repeated use of 1 to 3 per cent hexachlorophene soap for from one to three minutes several times a day for at least five days a week reduces and maintains the bacterial flora of the skin to about five per cent of the usual number. It is also noted that once the use of hexachlorophene soap is discontinued, the flora of the skin regenerates promptly and returns to normal proportions in about seven days.

Another avenue of approach to the control of body odor lies in the use of antiperspirant compounds. To the uninitiated, says McCord (10), it would seem highly desirable to incorporate the active chemical compound, such as aluminum chloride, into soaps. Actually, any such high acid agent quickly "kills" soap so that it is no longer serviceable as such.

Nonetheless methods have been proposed for making soaps with antiperspirant action. Thus, in the patents granted to Pick (17), perspiration preventing soaps may be made from:

Chromium trioxide	3-5 parts
Hexamethylene tetramine	1-2 parts
Aluminum acetate	1 part
Sodium soap	100 parts

The first three ingredients are mixed with the molten soap and the product is allowed to harden into shapes of any desired configuration. The usual type of aromatic materials may be added to the soap base, but the presence of readily oxidizable substances should be avoided. In glancing over the active ingredients, one cannot help but wonder how thoroughly the soap was checked for possible irritant or toxic effects.

Indicator Soaps

DURING the war considerable effort went into the development of materials to protect workers from industrial dermatoses and other deleterious skin conditions. Concurrent with the formulation of skin protective creams and special industrial hand cleaners, came a growing demand for soaps that would not only be good cleaners, but which would also indicate by a color change if certain dan-

An increasingly important part of the general soap picture are soap products for special uses that may go beyond just cleaning.

gerous substances remained on the skin (18). With such indicator soaps it was possible to continue washing until all the toxic material was removed.

One such soap was developed by Norwood (19) for workers handling TNT or tetryl. This consisted of a liquid soap to which was added 5 to 10 per cent of potassium sulfite and 5 to 15 per cent of a wetting agent. As long as TNT or tetryl remains on the hands, this soap will give a purple color.

Similarly useful was the mercury detector soap developed by Mason and Botvotnick (20) to reduce the incidence of mercury fulminate dermatitis in the explosives industry. The formula for this special soap is as follows:

Diphenylthiocarbazono ..	0.18 Gm.
Triethanolamine	250.00 cc.
Liquid soap	750.00 cc.
Hydroquinone	0.015 Gm.

This soap, as produced, is orange in color, but in the presence of mercury salts it changes rapidly to a deep, easily recognized purple. This stable, quick-acting soap, which also provides good detergent action, is sensitive enough to indicate the presence of extremely minute quantities of mercury on the skin.

As was often the case, cessation of hostilities seemed to have ended research on such indicator soaps. Yet, under so-called normal conditions further study of such specialty cleaners could result in a reduction of industrial dermatoses and toxic accidents plus a lowering of insurance and compensation costs.

Of kindred interest, but hardly of similar importance are soaps containing various special dyes (21). One such soap could be useful, for example, to check the extent to which workers in restaurants and food plants obey sanitation rulings or for training small boys in the habits of personal

cleanliness. Such a product can be made by adding a suitable proportion of beta-methylumbelliferone to ordinary soap. The soap does not leave any mark or stain that is visible in ordinary light, but under ultraviolet light the washed area shows up as a bright blue color.

Dental Soap Cakes

DENTAL soaps in cake or block form are not much used in this country, but are quite popular in Europe and in colonial areas. Hence soap specialty makers with foreign outlets may find such products are good export items. According to one British publication (22), the production of tooth soaps is confined largely to the soap maker because soap stamp molds are required in their manufacture. Such dental items consist of specially prepared soaps, generally highly perfumed and flavored, or are made from tooth powder mixed with its own weight or more of neutral soda soap, while the latter is hot and pasty. Castile soap is often used for making dental soaps.

More recently, the British authority, Vallance (23) pointed out that the soap base used for the production of tooth soaps should be as tasteless as possible and should not be free-lathering. Hence ordinary soap bases are not suitable for the purpose since they are usually made with the object of producing a creamy or copious lather, which is not at all pleasant in a tooth soap. Most suitable for this purpose, says he, is a soap made from highly refined, salt-free lard. With such a base, a general purpose tooth soap may be made from:

	Per Cent
Special lard soap base	25
Precipitated chalk	70
Talc	5

Flavoring and any desired coloring is incorporated during the milling process. A flavoring composition

for this soap may consist of:

	Ounces
Peppermint oil	8
Aniseed oil	3
Coumarin	1
Lavender MB	1
Clove oil	3
Saccharin	2

Variations in the above soap may be obtained by using other grades of chalk and various other materials. Powdered orris root may be included; also heavy magnesium carbonate and tin oxide. Vallance suggests that among the more novel materials that could be incorporated experimentally in such soaps are sulfonated castor oil, sulfated fatty alcohols, methyl cellulose, sodium hexametaphosphate and sodium perborate. Fruity flavors could also be tried.

It is rather interesting to note that a working formula for making a tooth soap is given in "The Pharmaceutical Recipe Book," a semi-official publication of the American Pharmaceutical Association. This is given as follows:

Precipitated calcium carbonate	660.0 Gm.
Carmine	6.0 Gm.
Coumarin	6.0 Gm.
Thymol	9.0 Gm.
Menthol	9.0 Gm.
Oil of clove	4.5 Gm.
Hard soap, powdered	177.0 cc.
Glycerine	44.0 Gm.
Alcohol, to make	1000.0 Gm.

After the ingredients are properly mixed, the product is pressed into suitable molds, then exposed to the air for a full day and the pieces are finally painted with tincture of benzoin to give them a gloss.

Probably more in line with American tastes is the following (21) liquid dental soap:

	Parts
Olive oil	70
Caustic potash (38°Be.)	35
Alcohol	280
Glycerine	230
Water	350
Perfume and flavor	35

It may be necessary to adjust the quantity of caustic potash. After being dissolved in about an equal weight of alcohol, the potash is used to saponify the oil. To the soap thus formed there is added, with good agitation, the previously warmed water and glycerine. Allow to cool and then add the rest of the alcohol and the

perfume with good stirring. Let settle for 8 to 14 days in smaller vessels and filter before packaging.

Obesity Soaps

NOWADAYS one hears very little about so-called obesity soaps and it is doubtful if such products could be sold in this country. At one time, however, they held a high position and were sanctioned by high authorities in Europe. Indeed, the famous dermatologist, Unna, is said (22) to have employed an obesity soap consisting of five per cent of potassium iodide in a superfatted soap base.

Of interest in connection with such products are various special soaps or soap compositions for use as massage lubricants. One product of this sort is described (22) as consisting of a finely prepared and perfumed potash soap, soft enough to be used as if it were an ointment. It was dispensed in a collapsible tube and the instructions were to use it as the lubricant for a gentle massage. In another reference text (24), methods are given for making other types of massage soaps. One "excellent recipe" for a massage soap calls for the use of:

	Pounds
Coconut oil (Cochin) soap	250.0
Lanolin	5.0
Pine needle oil	2.0
Spike oil	0.3

Vitamin Soaps

ALSO more or less relegated to limbo are the various vitaminized soaps which attracted so much attention about a decade ago. Soaps containing vitamin D were lauded for their beneficial effects on the skin and Augustin (25) advocated the use of small amounts of "vitamin F" concentrates in toilet soaps to prevent possible irritation. However, there was considerable skepticism (26) regarding the value of such additions and nothing much came of the vitaminized soaps.

Nonetheless it is quite possible that interest may again revert to vitaminized or similar soaps, but from a different aspect. This is indicated in the investigations of Solomides and Hirsch (27) at the Pasteur Institute

in France. They found that cod-liver oil soaps had remarkable anti-bacterial potentialities. For example, pneumococci were completely lysed and killed by cod-liver oil soap in a 1:150,000 dilution. Indeed, some lysis was evident after 24 hours' exposure to a high dilution of 1:2,000,000.

Insecticidal Soaps

OVER the years, various types of insecticidal soaps have been developed and some of them have found good acceptance. Dog soaps, for example, may contain insecticides (4) and one such soap, made with DDT, has proved very efficient. (28) During the war a sulfur and soap combination proved very effective in field maneuvers as a prophylaxis against "chiggers" or red bugs. This protective action was obtained by the use of a loosely woven cloth impregnated with pure sulfur and a bland toilet soap. When this applicator is moistened, a copious foam is produced which evenly distributes the sulfur over the body. Not only did Romeo (29) find such a product to be an effective protection against chiggers, but he also cited the cleansing action of the sulfur lather as being of considerable importance. With a proved record of efficacy, this sulfur soap preparation finds a market in hikers, campers, harvest workers and others exposed to the chigger family of insects.

Another field for insecticidal soaps is in the protection of woolens and other susceptible materials from damage by moths and carpet beetles. Indeed what could be more natural than to wash such materials with a moth proofing soap, thereby obtaining cleanliness and protection at the same time? Apparently workers at the I. G. Farbenindustrie thought it was a good idea, as is evident in the patents (30) granted this company in Germany, France and England. According to these patents, soaps for simultaneously cleansing and mothproofing wool, feathers and hair can be made by incorporating a mothproofing agent which is non-volatile or which becomes non-volatile on the material.

(Turn to Page 149)

New Davies-Young Plant



New Dayton Plant

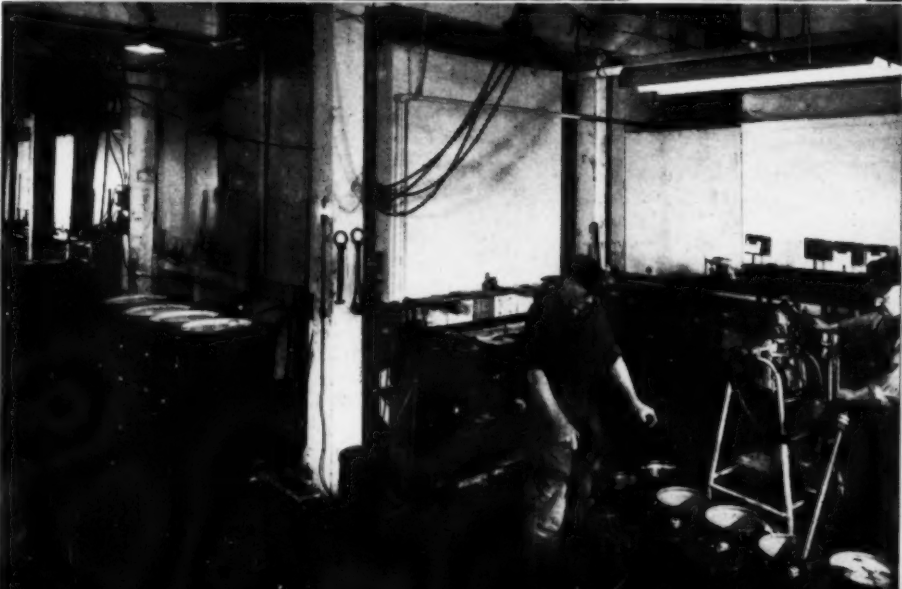
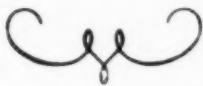
Provides Expanded Working Facilities

DAVIES-YOUNG SOAP CO. is now operating in new and greatly expanded quarters on Albany St., Dayton, O., where the firm produces a full line of bulk soap, waxes, polishes, disinfectants, insecticides, deodorant blocks, and related chemical specialties for the trade. The company was formerly located on North Findlay St. in Dayton, where in spite of several additions to the plant in the 35 years that the firm was situated at that address, still more space was needed. Recently, Davies-Young acquired the five-acre tract of land on Albany St. that contained the group of buildings formerly occupied by Dayton Last Works and Macgregor Golf Co. These buildings have been completely revamped and now furnish approximately 125,000 square feet of factory space, all of which is ideally suited for manufacturing purposes. In addition, considerable storage space is provided for raw materials as well as finished products.

The offices of the company are located on the fourth floor of the main building. Spacious research laboratories are situated on the third floor of this building.

The new Davies-Young factory is located adjacent to two of the major railroads operating through Dayton, thus providing excellent facilities for shipping by rail.

Photographs on this and the facing page show, reading clockwise, the kettle room; plant exterior; Dr. R. B. Trusler, who is in charge of research for the firm, working in the new laboratories; the shipping and storage department and two employees filling and topping cans in the bulk packaging department.



Employee

THE need for mutual confidence and understanding between employee and employer is a subject that has been widely discussed. Everyone admits that they are essential to harmonious industrial living. But how these can be built is a question that perplexes, bewilders and be-damns many a business.

Good employee relations today rank as one of the most important assets of a company. World conditions, the nation's economics and changing social philosophies are reflected sharply in industry—in people. As a result, harassed personnel directors are battling to maintain the equilibrium of employee relations beset by the tides of the times.

Just how does a business weld a widely scattered group of 8000 into a productive and effective industrial team serving the needs of the American consumer? A study of Lever Brothers Co., supplies one answer to this query.

The goal of employee relations at Lever Brothers is to have its 8000 people work for themselves, for each other and for the general benefit of the company. Put it a slightly different way. Each individual Lever employee is

Helping to promote understanding are Family Days, when wives and children of employees may visit the plant. The company underwrites the cost of these popular events.

A highly popular employee relations policy,—started during the war because of shortages,—is the box of Lever soap and shortening products being packed by the young woman at left. Employees can purchase the box each month at cost. Employees were polled on the contents of the box.

In every Lever plant there is a clinic staffed by a doctor and nurses to provide medical care for employees. The company sponsors a program under the guidance of a full-time medical director to protect the health of workers.

Important in any employee relations program are the booklets, brochures, manuals and company magazine illustrated at lower left. They are written in an easily read style to keep employees informed of the activities of the company.



e Relations at Lever

bound to benefit if 7999 other persons are working not only with but for him. The core of this program, of course, is to build the good of the whole by encouraging the individual to do his utmost in his work. This idea has been fostered by Lever's president, Charles Luckman, in his leadership of the company.

This dynamic conception of what a group of people can accomplish by working together for themselves is a basic feature in the Lever employee relations program. Those in charge of personnel administration at the company strive creatively to achieve it in practice.

If management errs or is too arbitrary in its policies, its transgressions are quickly reflected in morale, productivity and the number of grievances. And in these times it is not good business or employee relations to err or be arbitrary.

Perhaps the greatest mistake a company can make in its personnel relations today is to accept blindly the fallacy that a program which worked before, during or immediately after the war will be successful now.

This would be as foolish as to take for granted that a 1938 or 1947

product requires no improvement, new advertising or up-to-date merchandising.

Over the years, as workers have sought higher wages, better working conditions and greater job security, they have also instinctively reached for other less tangible but nevertheless important psychological boons.

Job Security Important

SURVEYS have shown that employees put job security before wages. They are earnestly interested in a sense of "belonging" within the group with which they work. This is, as we know, an extension of a normal human reaction evidenced throughout civilization in the family and the community as deep sources of satisfaction. It is no less important in business.

Any personnel director charged with the responsibility of building a harmonious, reliable and productive working force, whether it is in the office or the plant, must go beyond a mere pay-check-and-rules relationship with the employees. Essential in a worthwhile personnel program is a firm foundation of mutual understanding by employees of company motives. In

a company as large as Lever Brothers, this is difficult, but not impossible.

In the smaller companies of past decades the boss usually had a personal relationship with the employees. Today, taking the place of this man-to-man relationship at Lever is a carefully planned and honestly employed system of communications to tell workers *what* and *why* certain things must be done. Using modern media such as booklets, brochures, magazines, bulletins, and public address systems—even television—management is finding ways of talking with employees.

Of course, this or any other type of "talking" would be fruitless without having some degree of confidence between the employee and the employer. The Lever personnel department, with its industrial relations division, and aided by the public relations department, helps formulate and *explain* policies which will build confidence among the employees.

This is a vital task. The best policies in the world will crack when subjected to the withering fire of suspicion. It is a never-ending job.

Perhaps a brief review of the Lever program of employee communications will indicate the scope of the job. Employees like to know "what is going on" in the business. Lever's management authorized three years ago a series of brochures, each of which would inform the employees about the business.

The first one, "The Road

Lever employees can enjoy low-cost meals at plant cafeterias maintained by the company, which pays all the overhead costs of operation. Good nutrition is encouraged through carefully balanced menus. This is a far cry from the days of the dinner pail.

Upon completion of 25 years of service every employee at Lever Brothers is awarded a United States Savings Bond for a substantial amount and a diamond studded service pin. Charles Luckman, president, below presents a bond at a Quarter Century Club gathering.



Ahead," described the growth of the company and the opportunities for advancement during those years. It named many of the top executives who had started in minor positions. Further, it pointed out the determination of the company to keep on growing, keep on providing opportunity for advancement not only to individuals but to all employees in the way of wages, working conditions and job security.

As the result of a question asked in "The Road Ahead," employees selected the topic for the next brochure, which was entitled, "What About Lever Advertising?" This one explained why the enormous expenditures on advertising are necessary to keep the Lever products in the public eye and attract the shopper. It was done in comic-strip style, proved highly popular and certainly filled an informational need of the average employee who knows about advertising only in the vaguest terms.

But the brochures are only one part of the Lever communications program. It is now established custom to distribute information of a topical or timely nature to employees.

When events such as promotions, major changes in personnel, acquisition of new companies and expansion of the present plants or offices occur, the employees read about them on bulletin boards. They know about these happenings before they reach the press or radio.

This, too, is a way of taking employees into the corporate confidence. It eliminates the dangers of unfounded rumors and gossip at the same time that it builds up morale and understanding.

As another important part of the communications program, the employees are regularly informed by the *Lever Standard*, a company magazine issued each month. This publication features articles designed to increase understanding of the company's activities and provide an exchange of experiences.

Economic education has been repeatedly stressed in the *Standard*, which recently published articles on the Lever pension plan and an analysis of the Federal Social Security Plan.

SYNTHETIC DETERGENTS — Up-to-Date

By John W. McCutcheon

Part III

With the publication of the listing beginning on the facing page we conclude the series giving data on more than 750 synthetic detergent products. Reprints are now available.

These articles were well received by the employees, and over 100 outside firms requested copies for republishing.

To promote finer feeling and greater good will throughout the company, with the families of employees and among the communities nearby Lever plants, open house is held periodically.

Open house events are planned and put on by the employees. The committees include workers representing not only plant management but also employees in the offices, who join with union members to stage the open houses. The response in good will is tremendous.

All work and no play can make more than a dull employee. Roots of work dissatisfaction can grow from lack of recreation. In every Lever plant and office there are social clubs. A sports program is encouraged and partly underwritten by the company. Picnics and outings are reported monthly in the *Standard* during the spring, summer and fall.

Softball and bowling teams, which have a great popularity, compete in industrial leagues. Only last winter a group of workers at Lever House, the company headquarters, founded a dramatic club. The employees did it on their own initiative and put on an excellent show, with

the management delighted at the enterprise and perfectly willing to underwrite a small deficit.

The company has expanded so rapidly within recent years, through the purchase of other companies or products that approximately two-thirds of the 8000 people now employed have come with the company during the past two and one-half years. This fact again points up the need for greater understanding.

Booklet for New Employees

REALIZING that the new employees and many of the older ones required information about the company, the management published a get-acquainted booklet for everybody. In down-to-earth language, the booklet, which also serves as a manual, outlined some of the company's history, the working conditions that prevail, the employee benefits that all receive and the guiding business philosophy of the management. It is titled, "Growing With Lever."

In a recent message to all Lever people when the employees' manual was distributed, Charles Luckman, Lever president, declared:

"A successful business is said to be 'a group of people working together.'"
(Turn to Page 147)

Synthetic Detergents...

Trade Name	Manufacturer	Class and Formula	Main Uses	Form	% Conc.	Type	Remarks
Nopco 2031	Nopco Chemical Co.	Sulfated hydroxy stearic acid	Wetting	Liquid	60%	anionic	Stable to acid and alkali. Water soluble. Slightly soluble in kerosene. Uses: metal cleaning, rubber reclaiming, etc.
Nopco 2251-B	Nopco Chemical Co.		Emulsifier	Solid	96%	anionic	Paraffin wax emulsifier.
Nopco 2272-R	Nopco Chemical Co.	Sulfated fatty ester	Wetting	Liquid	65%	anionic	Textile, paper, rubber, metal cleaning.
Nopco HBX-2	Nopco Chemical Co.	Sulfonated oil blend	Emulsifier	Liquid	100%	nonionic	An emulsifying agent designed for chlordane.
Nopocide K	Nopco Chemical Co.	Quaternary ammonium salt	Germicide	Cryst.	100%	cationic	Water soluble. Insoluble in kerosene. Uses: sanitizer for dairies, etc.
Nopco 14-L	Nopco Chemical Co.	Fatty amino compound	Emulsifying Dispersing	Liquid	100%	nonionic	A dispersant and emulsifier for fatty esters, pigments, etc. Uses: textile, wool processing; leather, degreasing, etc.
Nopco 16-S	Nopco Chemical Co.	An aminoethyl ethanalamine condensate with stearic acid. See Amine 220 also	Emulsifier	Solid	100%	cationic	Textile softening agent.
Nopco 18-L	Nopco Chemical Co.	Similar to Nopco 16-S only from lauric acid	Emulsifier	Solid	100%	cationic	Lump form. Emulsifier for O/W or W/O emulsions. Uses: textile, leather, etc.
Nopco 20-O	Nopco Chemical Co.	Similar to Nopco 16-S only from oleic acid. An aminoethyl ethanalamine condensate with a fatty acid. See amine 220 also	Wetting Emulsifying	Solid	100%	cationic	Water insoluble, oil in water emulsifier. Uses: textile, asphalt wetting agent.
No-Strip (Concentrated)	No-strip Division of Maguire Inc.	An amine condensation product with tall oil	Wetting	Liquid	37%	nonionic	Designed for asphalt binding to wet stone. Approx. 1% is required. Concentrated form is made at 75% active.
Novonacco	National Aniline Div., Allied Chem. & Dye Corp.	Modified sod. alkyl naphthalene sulfonate	Wetting			anionic	Textiles.
Novonacco NN	National Aniline Div., Allied Chem. & Dye Corp.	Alkyl naphthalene sulfonic acid	Wetting			anionic	Textile, wool carbonizing.
NSAE	Onyx Oil and Chemical Co.	Sod. alkyl naphthalene sulfonate (Alkyl group probably isopropyl)	Wetting Emulsifying	Powder	85%	anionic	Textile processing; dye levelling; electroplating.
Nullapon A	General Dyestuff Corp.	Amino carboxylate	Sequestering	Powder	45%	anionic	For sequestering of calcium and magnesium ions.
Nullapon B	General Dyestuff Corp.	Sod. salt of ethylene di-amino tetra-methyl carboxylic acid	Dispersing Sequestering	Powder	42%	anionic	A dispersing agent with a wide versatility in handling the ions of the heavy metals. See U. S. Pat. 2,130,505.
Nullapon BFC	General Dyestuff Corp.	Sod. salt of ethylenediamine tetra-acetic acid	Sequestering	Liquid	30%	anionic	A liquid form of Nullapon B. Also available as 90% free flowing powder as Nullapon BFC Conc.
Nylon 218*	Sharples Chemicals, Inc.						Name changed to Nonic 218.
Nytrol	Solvay Process Co.	Complex mixture of sulfonated ketones, amines, alkyl sulfamates	Detergent Wetting	Flake	35%	anionic	General detergent for household and industrial purposes.
Octab	Rhodes Chemical Co.	Octadecyl dimethyl benzyl ammon. chloride $C_{17}H_{35}(CH_3)_2N(C_6H_5CH_2)_2Cl$	chlo-Germicide Wetting	Cryst.	100%	cationic	See also Arquad-16 for closely similar compound. Pharmaceutical grade. Phenol Coeff. at 37°C. against S. A. 200-250.
Octab C*	Rhodes Chemical Co.	Commercial grade of Octab	Germicide Wetting	Solid	100%	cationic	Discontinued.
Octab CT*	Rhodes Chemical Co.	Technical grade of Octab	Germicide Wetting	Solid	100%	cationic	Discontinued.
Optimet	Rhodes Chemical Co.	Octadecyl dimethyl ethyl ammon. bromide	Germicide Wetting	Cryst.	100%	cationic	Fungicide. See also Ethyl Cetab. Phenol Coeff. at 37°C. against S. A. 150-200.

* Discontinued

Synthetic Detergents...

Trade Name	Manufacturer	Class and Formula	Main Uses	Form	% Conc.	Type	Remarks
Oleo Glycerol Sulfate	Onyx Oil and Chemical Co.	Fatty ester sulfate	Wetting	Liquid		nonionic	Textile.
Ondal A	E. I. du Pont de Nemours & Co.	Blended product	Detergent	Powder		anionic	Contains detergent plus oxidizing chemicals to develop vat dyes. Textiles.
Onyxide	Onyx Oil and Chemical Co.	Alkyl dimethyl ethyl ammonium bromide	Germicide		75%	cationic	The alkyl group is a mixture of aliphatic hydrocarbon radicals, principally unsaturated, containing approx. C ₁₈ carbons.
Onyxsan AD, LG, HSB, O and S	Onyx Oil and Chemical Co.	Complex organic amide	Wetting				Textile, leather. See also Amine 220.
Oranap*	Jacques Wolf & Co.			Liquid		anionic	
Oratol	Jacques Wolf & Co.	Sulfonated amide	Detergent Wetting	Paste	20%	anionic	Textile.
Oratol L-48	Jacques Wolf & Co.	Sod. salt of a sulfoester of a fatty alkyl amide	Detergent Wetting				Water soluble, kerosene insoluble.
Oronite Purified Sod. Sulfonate (L, LZ, MH, H)	Oronite Chemical Co.	Sod. benzene sulfonate with short alkyl side chains totalling approx. C ₁₈	Emulsifying	Liquid	68%	anionic	Uses: Cutting oils, emulsion breakers, rust preventive, fat splitting. L, LZ, MH, and R represent four molecular weight grades. "H" is 59% active.
Oronite Sod. Sulfonate #4	Oronite Chemical Co.	Alkyl aryl sod. sulfonate	Detergent Wetting	Liquid	30%	anionic	Soluble in water up to 30%. Partly mineral oil soluble.
Oronite Sod. Sulfonate #5	Oronite Chemical Co.	Alkyl aryl sod. sulfonate	Wetting Penetrating	Liquid	37%	anionic	A water dispersible, hydrocarbon soluble compound.
Oronite Sod. Sulfonate #6	Oronite Chemical Co.	Alkyl aryl sod. sulfonate	Wetting	Liquid	55%	anionic	Water soluble, oil insoluble.
Oronite Wetting Agent	Oronite Chemical Co.	Alkyl aryl sod. sulfonate	Wetting Emulsifying	Paste	66%	anionic	Uses: Agricultural sprays, fruit peeling and washing, textile and leather dyeing.
Orset L*	Onyx Oil and Chemical Co.						
Orthocen K	Am. Aniline & Extract Co.	Sulfated cresylic acid	Wetting Penetrating			anionic	Textile. See also Xylene sod. sulfonate, etc.
Orvus ES Paste	Procter & Gamble Co.	Alkyl sulfate from higher fatty alcohols	Detergent Wetting	Paste		anionic	Less soluble than Orvus WA. Better detergent at higher temperatures. Textile processing. See also Duponol D.
Orvus WA Paste (WA Granules)	Procter & Gamble Co.	Sod. salt of technical lauryl sulfate	Detergent Wetting	Paste		anionic	General household and industrial cleaning agent. See also Duponol WA. Orvus WA Granules.—Spray dried form.
Pactivex	Publicker Ind., Inc.	Sod. dodecyl toluene sulfonate	Detergent	Flake	40%	anionic	General industrial and household cleaner.
Padasol	Jacques Wolf & Co.	Sod. alkyl aryl sulfonate	Wetting Dispersing			anionic	Textiles as a dyestuff dispersant.
Parnol	Jacques Wolf & Co.	Sod. alkyl aryl sulfonate	Wetting Emulsifying	Powder		anionic	Soluble up to 5% in water. oil in water emulsifier. Use: Textiles.
PD Powder	Lehigh Chemical Co.	Sod. salt of a sulfonated fatty amide	Detergent	Powder	15%	anionic	General cleaning agent. Possibly similar to Arctic Syntex T, RN-600, etc.
Peg-42	Glyco Products Co.	Polyoxyethylene stearate	Emulsifying Dispersing	Paste	100%	nonionic	Food emulsifying and dispersing agent.
Penequik	L. Sonneborn Sons, Inc.	Sulfonated ester	Wetting Penetrating			nonionic	Textiles, as a softening agent.
Penetrant 60	Beacon Co.	Sod. and pot. salts of sulfonated esters of dicarboxylic acids	Wetting Penetrating			anionic	Textiles, paper, leather.
Penetrant 65	Beacon Co.					anionic	Textiles, paper, leather, etc.
Penetrator WH-9	Apex Chemical Co.	Amino condensate	Wetting Penetrating	Liquid	100%	nonionic	A wetting agent for the textile trade.
Penetrolin AC	Arkansas Co.	Alkyl naphthalene sod. sulfonate	Wetting	Liquid	30%	anionic	Textile, leather.

* Discontinued

Synthetic Detergents...

Trade Name	Manufacturer	Class and Formula	Main Uses	Form	% Conc.	Type	Remarks
Pensal O	Pennsylvania Salt Mfg. Co.		Detergent	Powder		anionic	Anionic powder. A compounded detergent for the industrial trade.
Pentamull 6	Heyden Chemical Corp.	Pentaerythritol monostearate	Emulsifying		100%	anionic	General emulsifier, cosmetics, etc.
Pentamull 9	Heyden Chemical Corp.	Pentaerythritol monopalmitate	Emulsifying		100%	nonionic	General emulsifier.
Pentamull 87	Heyden Chemical Corp.	Pentaerythritol esters of soya bean fatty acids	Emulsifying		100%	nonionic	Acid and alkali stability poor in these compounds.
Pentamull 88	Heyden Chemical Corp.	Pentaerythritol ester of lauric acid	Emulsifying				From technical grade pentaerythritol.
Pentamull 126	Heyden Chemical Corp.	Pentaerythritol ester of oleic acid	Emulsifying	Liquid	100%	nonionic	Recommended for creams, etc. No ill effects physiologically.
Pentamull 126S	Heyden Chemical Corp.	Same as Pentamull 126	Emulsifying		100%	nonionic	Same as Pentamull 126 with possibly an added ingredient such as soap, to make self emulsifying.
Pentamull 145	Heyden Chemical Corp.	See Pentamull #6 and note under re-Emulsifying marks	See Pentamull #6 and note under re-Emulsifying marks		100%	nonionic	Same as Pentamull #6 using tech. pentaerythritol.
Pentamull 147	Heyden Chemical Corp.	See Pentamull 88 and note under re-Emulsifying marks	See Pentamull 88 and note under re-Emulsifying marks		100%	nonionic	Same as Pentamull 88 using pure pentaerythritol.
Pentamull 149	Heyden Chemical Corp.	See Pentamull #9. Same only using pure grade pentaerythritol	See Pentamull #9. Same only using pure grade pentaerythritol		100%	nonionic	Same as Pentamull #9 using pure pentaerythritol.
Peregal C (German)		Ethylene oxide condensation with dodecyl alcohol	Detergent	Liquid		nonionic	See also Brij. Peregal is generic for a number of type products, thus Peregal OK is a quaternary amm. salt. Peregal O is a 20% solution of Leonil O, etc.
Perma Kleer	Refined Products Corp.	Sod. Salt of a polyaminocarboxylic acid	Sequestering Liquid		19%	anionic	See also Nullapon, Versene, Sequestrene.
Persol 40	Perkins Soap Co.	Igepon T type detergent	Detergent	Liquid	40%	anionic	Acid and alkali stable. Uses: General household and industrial cleaner.
Petrowet R	E. I. du Pont de Nemours & Co.	Hydrocarbon sulfonate	Detergent	Liquid		anionic	An emulsion breaker. Use: Acidizing oil wells, etc.
Petrowet WN	E. I. du Pont de Nemours & Co.	Sulfated alcohol	Wetting			anionic	
pHisoderm	Winthrop-Stearns, Inc.	Sulfonated ether, etc.	Detergent	Liquid	74%	anionic	A fluid cream type detergent for special medical purposes. Hypoallergenic.
Phi-O-Sol. WA.	Onyx Oil and Chemical Co.	A sulfated ester of a fatty acid	Wetting			anionic	A carboxylic acid ester sulfate. See U. S. Pat. 2,032,314.
Polyethylene Glycol Esters of Fatty Acids	Glyco Products Co.	As named	Penetrating			nonionic	Not a trade name product, but given here for reference.
Polymene G-24	Quaker Chemical Products Corp.	Fatty amide condensate	Wetting	Liquid	98%	nonionic	Textile.
Prell (Retail)	Procter & Gamble Co.		Emulsifying				
Proflex	Glyco Products Co.	A modified protein	Detergent	Cream		anionic	Hair shampoo.
			Emulsifying	Powder	92%	anionic	Insoluble in mineral oils, hydrocarbons, alcohol, kerosene. Water dispersible. An emulsifier for water paints.
Pyrolene	Standard Chemical Products	Sulfonated condensation product.	Detergent				Textile scouring agent.
Pyrotex	Standard Chemical Products	Sulfonated condensation product.	Wetting				Textile dyeing assistant.
Pyrotex 121	Standard Chemical Products	Sulfonated condensation product.	Detergent				Textile boil off assistant.
Quakester 437	Quaker Chemical Products Corp.	Complex glycol ester	Detergent	Liquid	100%	nonionic	Industrial cleaners.
Quakester 589	Quaker Chemical Products Corp.	Complex glycol ester	Wetting	Liquid	100%	nonionic	Industrial cleaners.
Quaternary C.O.S., Alrose Chemical Co.		Quaternized Alro Amine C.O.S.,	Detergent			cationic	Solvent soluble.

* Discontinued

Synthetic Detergents...

Trade Name	Manufacturer	Class and Formulas	Main Uses	Form	% Conc.	Type	Remarks
Quatronyx	Onyx Oil and Chemical Co.	Quaternary ammonium compound	Wetting Penetrating				Stable in acid, alkali and high concentrations of salt.
Quix	E. F. Drew & Co.	Sulfated fatty acid amide	Wetting				Paper, textile, leather.
Quixite	E. F. Drew & Co.	Sulfated fatty acid amide	Detergent				Textile, leather.
Ramol PW*	Jacques Wolf & Co.						Name changed to Lomar PW.
Regal	Armour & Co.	Alkyl aryl sod. sulfonate	Detergent Wetting	Flake	40%	anionic	Textiles, metal cleaning, household detergent.
Renex 48, 28	Atlas Powder Co.	Poly oxyethylene ester of mixed fatty and rosin acids (Tall oil)	Detergent Wetting	Liquid	100%	nonionic	Identical with G-1228. A synergistic agent to improve detergency of alkyl aryl sulfonates. Also for laundry use. Renex 48 is 90% active; Renex 28 is a built product that is 35% active.
Resolin B	Sandoz Chemical Co.	A substituted hydrocarbon	Wetting				Textile.
Resolin NF	Sandoz Chemical Co.	A substituted hydrocarbon	Wetting				Leather.
Rinfors S. (-L)*	Sandoz Chemical Co.		Detergent				Textile.
Rinsynol 20L	Alrose Chemical Co.	Alkyl naphthalene sod. sulfonate	Detergent Wetting	Liquid	20%	anionic	Water soluble. Detergency best at 50°C. Use: Textile. Dilute form of Finsynol 50L.
Rinsynol 50L	Alrose Chemical Co.	Alkyl naphthalene sod. sulfonate	Detergent Wetting	Liquid	43%	anionic	Textile; dyeing, rewetting; general cleaners.
RN-SOL #1	Riches-Nelson Co.	An ester	Wetting	Liquid	100%	nonionic	Thickening agent. Low foam value. pH of 1% sol. 6.
RN-SOL #2	Riches-Nelson Co.		Emulsifying	Liquid	100%	nonionic	An emulsifier for DDT, etc.
RN-Gel	Riches-Nelson Co.		Wetting	Paste	17%	anionic	Stable to mild acid and alkali solutions. Uses: Cosmetics, textile dyeing.
RN-Water Softener A	Riches-Nelson Co.	A polyamino carboxylic acid salt	Sequestering	Liquid	50%	anionic	Similar to Nullapon or Sequestrene in type and use.
RN-20L	Riches-Nelson Co.	Alkyl aryl sulfonate	Detergent Wetting	Liquid	20%	anionic	Not recommended in presence of heavy metals.
RN-31	Riches-Nelson Co.	Modified alcohol sulfate	Detergent Wetting	Powder	31%	anionic	pH neutral. Uses: Textiles, household cleaners.
RN-35	Riches-Nelson Co.	Alkyl aryl sulfonate	Detergent Wetting	Flake	35%	anionic	Domestic and industrial cleaners.
RN-100	Riches-Nelson Co.	Modified alcohol sulfate	Detergent Wetting	Solid	15%	anionic	Domestic and industrial cleaners.
RN-200	Riches-Nelson Co.	Alkyl aryl sulfonate	Detergent Wetting	Powder	75%	anionic	Water spreader for fires, industrial cleaners, pickling baths.
RN-200A	Riches-Nelson Co.	Alkyl aryl sulfonate	Detergent Wetting	Paste	66%	anionic	Same as RN-200, only in less active strength.
RN-600	Riches-Nelson Co.	Fatty amide derivative	Detergent Wetting	Liquid	87%	nonionic	Mildly cationic in acid solutions and anionic in alkaline ones. Compare also to Alrosol H. Uses: General cleaner, cosmetics.
RN-700	Riches-Nelson Co.	Sod. salt of a secondary alcohol sulfate	Detergent Wetting	Paste	63%	anionic	Acid stability poor, alkali stability good. Uses: alkali cleaners, cosmetics, shampoos, etc.
Roccal	Winthrop-Stearns, Inc.	Alkyl dimethyl benzyl ammonium chloride	Germicide Wetting	Liquid	10%	cationic	A quaternary amm. salt. Phenol coeff. against S.A. at 37°-40°, at 20°-279. Use: Sanitizing agent.
Rodacide (A)	Rhodes Chemical Co.	A 2.5% Ethyl Cetab plus nonionic detergent	Germicide Detergent	Liquid	2.5%	cationic	A sanitizing agent. Rodacide A is a concentrated solution containing 25% Ethyl Cetab plus corr. amount of nonionic detergent.
Rodalon	Fairfield Laboratories	Alkyl dimethyl benzyl ammonium chloride $C_{17}H_{35}N(CH_3)_2(C_6H_4CH_2)_2-Cl$	Germicide	Paste	100%	cationic	See Octab which is a longer chain derivative. Also sold as a 50% active solution. Uses: Sanitizing solutions for dairies, restaurants, etc.

* Discontinued

Synthetic Detergents...

Trade Name	Manufacturer	Class and Formula	Main Uses	Form	% Conc.	Type	Remarks
Rodasuds 50	Fairfield Laboratories		Detergent	Liquid	50%	nonionic	A nonionic detergent for use with cationic germicidal agents. (A 100% active material is also available.)
Sandev Detergex	Lehigh Chemicals	Alkyl aryl sod. sulfonate	Detergent	Powder	40%	anionic	White beads. Detergency excellent. Contains phosphates.
Sandopan A	Sandoz Chemical Co.		Detergent	Paste			Textile.
Sandopan PO	Sandoz Chemical Co.	A sulfonated amine condensate	Detergent	Powder		anionic	Textile.
Sandozol N	Sandoz Chemical Co.		Wetting				Textile.
Santol S	Charlotte Chemical Labs.		Wetting				Textile.
Santomer 1	Monsanto Chemical Co.	Alkyl aryl sod. sulfonate	Detergent	Flake	40%	anionic	Side chain is long, detergency excellent.
Santomer 2*	Monsanto Chemical Co.						Discontinued.
Santomer 3	Monsanto Chemical Co.	Alkyl aryl sod. sulfonate	Detergent	Powder	100%	anionic	Water-soluble to extent of 15%. Also available as a 75% active paste.
Santomer 30X	Monsanto Chemical Co.	Alkyl aryl sod. sulfonate	Detergent	Liquid	25%	anionic	Very acid and alkali stable. Uses: General detergent and wetting agent for textiles.
Santomer 43*	Monsanto Chemical Co.						Discontinued.
Santomer 55*	Monsanto Chemical Co.	Alkyl ester of an aryl sulfonate	Detergent	Flake	25%	anionic	Designed for use in dentifrices.
Santomer B	Monsanto Chemical Co.	Decyl benzene sod. sulfonate	Detergent	Powder	100%	anionic	Best of Santomerse group for lowering interfacial tension.
Santomer D	Monsanto Chemical Co.		Wetting	Liquid	99%		Not acid stable.
Santomer DT	Monsanto Chemical Co.	N-alkylated alkylene polyamine $C_{12}H_{25}NH-C_2H_4NH-C_2H_4NH_2$					
Santomer OS	Monsanto Chemical Co.	An amine salt of an alkyl aryl sulfonate	Detergent	Paste		anionic	
Santomer S	Monsanto Chemical Co.	Alkyl aryl sod. sulfonate	Detergent	Liquid	30%	anionic	Water solution of Santomerse D.
Santomer TUB	Monsanto Chemical Co.	Alkenyl carboxylate	Wetting	Powder	99%	anionic	Not acid stable.
Sapamine KWC (KW)	Ciba Co.	Metho sulfate of quaternary composition	Detergent	Powder	99%	cationic	Textiles. Sapamine KW is 50% active solution.
Sapamine MS (Conc.)	Ciba Co.	Quaternary ammonium compound but not as a salt	Wetting	Paste	100%	cationic	Will exhaust on textiles. Not to be used with acid or direct colors.
Sapamine WL	Ciba Co.	Amino condensate	Penetrant	Paste	33%	cationic	pH of 1% soln. 5.2: Unstable to alkalis—precipitates out. Use: Textiles as softening agent.
Sellogen ASD Conc.	Jacques Wolf & Co.	Sod. alkyl naphthalene sulfonate	Detergent	Powder	80%	anionic	Stable to boiling acid and alkali up to 5%. Uses: Textile, laundering, paper processing, pickling baths, etc.
Sellogen C	Jacques Wolf & Co.	Higher alcohol ester compound	Detergent				Textile lubricant.
Sellogen O-141	Jacques Wolf & Co.	A compound of anionic and nonionic products	Emulsifier	Paste	85%	anionic	An emulsifier for Xylol solutions of DDT, etc.
Sequestrene A	Alroose Chemical Co.	Poly amino carboxylic acid salt approximately $CH_3N(CH_2COONa)_2$ $ $ $CH_2N(CH_2COONa)_2$ $ $ $CH_2N(CH_2COOH)_2$	Sequestrant	Liquid	27%	anionic	Formerly, Alro Water Softener. Sequesters lime soaps. Does not thin out starch and colloidal clay solutions.
Sequestrene AA	Alroose Chemical Co.	Poly amino carboxylic acid $CH_3N(CH_2COOH)_2$ $ $ $CH_2N(CH_2COOH)_2$ $ $ $CH_2N(CH_2COOH)_2$	Dispersant	Powder	100%	anionic	A crystalline solid of m.p. 220°C. Water insoluble. May be neutralized to Sequestrene A. Decarboxylates slowly above 150°C.
Sequestrene NA-2	Alroose Chemical Co.	Tech. pure disodium ethylene diamine tetra acetate dihydrate		Solid		anionic	Textiles. Solubility: 10% in water at room temperature pH-5.0.

* Discontinued

Synthetic Detergents...

Trade Name	Manufacturer	Class and Formula	Main Uses	Form	% Conc.	Type	Remarks
Serodit D (German)							Same as Nekal BX.
Setalol WS (German)			Dispersant				A naphthalene sod. sulfonate condensation product with formaldehydes. See also Dardan, Daxad, Tampol P, etc.
Shasta (Retail)	Procter & Gamble Co.		Detergent	Cream		anionic	Hair shampoo.
Sitol Flakes	E. I. du Pont de Nemours & Co.	Sod. salt of m-nitrobenzene acid	sulfonic Wetting	Powder		anionic	Mild oxidizing agent for direct and developed dyes. Use: Textiles.
Skill 181A	Gallowhur Chem. Co.	A modified alkyl sulfonate	Emulsifier	Liquid	100%	anionic	Emulsifier for chlordane, toxaphene insecticides.
Skortex	Wyandotte Chemicals Corp.	Alkyl aryl sod. sulfonate plus builders	Detergent	Powder		anionic	A compounded laundry detergent.
Soaps—amine	Misc.	As in name	Emulsifier Detergent			anionic	Amine soaps for use as emulsifiers include following, mono, di, triethanolamine, isopropanolamine, morpholine, trigamine, trihydroxy methyl amino methane, 2 amino-2 ethyl-1,3 triethylene tetramine propanediol, etc.
Soapotol	Commonwealth Color and Chemical Co.	Salt of a sulfonated fatty amide	Detergent	Powder	9%	anionic	Textiles. A more concentrated form is Cominol.
Soapotol LF	Commonwealth Color & Chemical Co.	An amine condensation product	Wetting Penetrating	Liquid	34%	nonionic	Leather industry for back wetting.
Softener FG	Synthetic Chemicals, Inc.		Wetting Dispersing	Paste			Textile softening agent and dispersant for starch, rosin, etc.
Solid LPC	Hooker Electrochemical Co.	Lauryl pyridinium chloride $C_{12}H_{25}N-C_{12}H_{25}$ Cl	Bactericide Germicide	Solid	30%	cationic	Liquid phenol coeff. S.A. 350. On basis 100% LPC.
Solidogen (German)							Generic term for an amine type product. Solidogen BS is quaternary amm. compound from poly amine and di methyl sulfate.
Solliol Base N60	Oil States Petroleum Co.	Petroleum sulfonates	Detergent Wetting	Liquid	63%		
Solvadine AL	Ciba Co.		Emulsifying Wetting	Liquid		anionic	Textile, leather, paper.
Solvadine BL	Ciba Co.	Sod. salt of alkyl naphthalene sulfonic acid	Emulsions	Powder		anionic	Textiles—kier boiling.
Solvadine G	Ciba Co.	Alkyl aryl sod. sulfonate	Wetting Emulsifying	Flake		anionic	Similar to Solvadine NC Conc. only with added electrolyte and dried. Uses: Textiles, wool carbonizing, etc.
Solvadine NC Conc.	Ciba Co.	Alkyl aryl sulfonate	Wetting	Liquid		anionic	General applications.
Solvadine R	Ciba Co.	Aryl alkyl ether sulfate	Wetting	Liquid			Textile.
Soluble Base #11 (#600)	Carlisle Chemical Works	An alkyl sod. sulfonate plus emulsifiers	Emulsifier	Liquid	92%	anionic	An oil in water emulsifier for preparing soluble oils. Moderately soluble in water, very soluble in benzene, mineral oil, alcohol. Soluble Base #600 same only designed for use with kerosene emulsions.
Solvotex	Alrose Chemical Co.	A low titer soap in solvent	Wetting Detergent	Liquid		anionic	Textile washing.
Sorapon SBND	General Dyestuff Corp.	Sodium alkyl aryl sulfonate	Detergent	Beads	35%	anionic	Stable to hard water, acid and alkali.

* Discussed

Synthetic Detergents...

Trade Name	Manufacturer	Class and Formula	Main Uses	Form	% Conc.	Type	Remarks
Sorapon SF Conc.	General Dyestuff Corp.	Sodium alkyl aryl sulfonate	Detergent	Flakes	85%	anionic	Stable to hard water, acid and alkali.
Sorbit AC	Alrose Chemical Co.	Mono and dibutyl naphthalene sod. sulfonate	Wetting Emulsifying	Paste	65%	anionic	Highly soluble in water and alkalis. Carbonizing, acid cleaners, polymerizations.
Sorbit ACH	Alrose Chemical Co.	Alkyl naphthalene sod. sulfonate	Wetting		100%	anionic	Use: Fire extinguishers.
Sorbit LA	Alrose Chemical Co.	A modified alkyl naphthalene sod. sulfonate	Wetting	Paste		anionic	Improved hard water resistance.
Sorbit P	Alrose Chemical Co.	Mono, dibutyl naphthalene sod. sulfonate	Wetting	Powder	75%	anionic	Same as Sorbit AC only in powdered form. A 93% powder is also available.
Soromine FW Paste	General Dyestuff Corp.	Sod. sulfonate of synthetic organic ester	Penetrant	Paste	50%	anionic	Textile softening agent and scouring agent.
Soromin (German)	Soromin						Generic term for group of amine soaps and other compounds e.g. Soromin A—triethanolamine stearate.
Sotex-N (-C,-CW,-NC)	Synthetic Chemicals, Inc.		Dispersant	Liquid			A dispersant for paints, etc. Modified types are designated Sotex-C,-CW, and -NC, etc.
Span 20	Atlas Powder Co.	Sorbitan monolaurate	Emulsifying	Liquid	100%	nonionic	Mfg. by dehydrating hexitol to hexitans and making mono ester. Water insoluble.
Span 40	Atlas Powder Co.	Sorbitan monopalmitate	Emulsifying	Solid	100%	nonionic	Cosmetics, insecticidal sprays, etc.
Span 60	Atlas Powder Co.	Sorbitan monostearate	Emulsifying	Solid	100%	nonionic	Cosmetics, food emulsifier.
Span 65	Atlas Powder Co.	Sorbitan tristearate	Emulsifying	Solid	100%	nonionic	Cosmetics.
Span 80	Atlas Powder Co.	Sorbitan monooleate	Emulsifying	Liquid	100%	nonionic	More soluble than the Span 40 and 60. W/O emulsifier.
Span 85	Atlas Powder Co.	Sorbitan trioleate	Emulsifying	Liquid	100%	nonionic	
SS 96	James Varley & Sons, Inc.		Detergent	Liquid			
Stablex A	Heveatex Corp.	Naphthalene sod. sulfonate	Wetting			anionic	Latex emulsifier.
Stablex -B (-C)*	Heveatex Corp.	Petroleum sod. sulfonate	Wetting			anionic	Latex emulsifier. Stablex C, discontinued.
Stablex G*	Heveatex Corp.						
Stearonyx*	Onyx Oil and Chemical Co.		Detergent				
Sterox AW	Monsanto Chemical Co.	A built powder containing Sterox CD as the surface active ingredient	Detergent	Powder		nonionic	A bulk powder similar in use to "ALL" for general cleaning. Low foam, excellent detergency.
Sterox CD	Monsanto Chemical Co.	Polyoxyethylene ether	Detergent	Liquid	100%	nonionic	Slightly hygroscopic. Active ingredient in Sterox AW and Detergent MXP. More soluble in cold than hot water. 2% in water at 140-160°F. gives cloudy soln. Detergency excellent.
Sterox -SE -SK	Monsanto Chemical Co.	Polyoxyethylene ether	Detergent	Liquid	100%	nonionic	Dishwashing, metal cleaners, textiles, etc.
Sulfanole*	Warwick Chemical Co.						
Sulfanole KB-40 (SA)	Warwick Chemical Co.	Alkyl aryl sulfonate	Detergent Wetting	Powder	40%	anionic	General cleanser for industrial and home use. Sulfanole SA is a salt free solution for car washes, rug shampoos, etc.
Sulfanole NF	Warwick Chemical Co.	Polyoxyethylene derivative	Detergent	Powder		nonionic	For automatic washing machines, low sudsing.
Sulfanole R	Warwick Chemical Co.	Fatty acid protein condensate	Detergent	Liquid		anionic	Textile scouring, etc.
Sulfanole CP	Warwick Chemical Co.	Amide sulfate	Detergent Emulsifying	Paste		anionic	Textile, various operations.
Sulfatate B	Glyco Products Co.	Alkyl aryl sod. sulfonate	Wetting Penetrant				Water soluble, non-toxic. Uses: Textiles, paper, leather, cosmetics.
Sulfatex	L. Sonneborn Sons, Inc.	Sulfated amine	Detergent	Paste	30%		

* Discontinued

Synthetic Detergents...

Trade Name	Manufacturer	Class and Formula	Main Uses	Form	% Conc.	Type	Remarks
Sulfram AB (ABW) (AB Conc.) (AB-20) (AB-40) (AB-40 Flakes)	Ultra Chemical Works	Dodecyl toluene sod. sulfonate, plus possible alkyl amido sulfates	Detergent Wetting	Flake	38%	anionic	Textile, leather, misc. cleaning, household. Sulfram ABW similar only of less concentration-25. Sulfram AB Conc. An 85% active conc. of above. Sulfram AB-20 is a 20% aqueous solution of Sulfram AB Conc. Sulfram AB-40 is a 40% sol. of AB Conc.
Sulfram BLX*	Ultra Chemical Works						
Sulfram DH (DHL) (DHL Conc.)	Ultra Chemical Works	Sod. salt of an alkyl amide sulfate	Detergent Wetting	Paste		anionic	Textile scouring, dye assistant, etc. Sulfram DHL is a 18½% solution of above. Sulfram DHL Conc. is a 31% active solution.
Sulfram DR	Ultra Chemical Works	Sod. salt of an hydroxy alkyl amido alcohol sulfate	Dispersing Penetrating	Liquid	25%	anionic	Liquid cleansers, shampoos, textile assistant.
Sulfram DRB	Ultra Chemical Works	Alkyl aryl sod. sulfonate	Penetrant	Liquid	30%	anionic	Textile.
Sulfram DT Powder (Paste)	Ultra Chemical Works	Sod. salt of an alkyl amino sulfate	Detergent	Powder	14%	anionic	Similar to Sulfram LW only with less lauric acid content which increases its hot water detergent properties. Not stable to strong alkali or acids. Uses: Industrial and household cleansers, cosmetics. Also available in slightly more concentrated form as a paste.
Sulfram E	Ultra Chemical Works	Modified alkyl aryl sulfonate	Detergent	Liquid		anionic	
Sulfram KE	Ultra Chemical Works	Alkyl aryl sulfonate	Detergent	Liquid		anionic	
Sulfram LW	Ultra Chemical Works	Sod. salt of an alkyl amino sulfate (More lauric acid content than sulfram DT)	Detergent	Powder	17%	anionic	Cold water detergent. Uses: Textiles, household cleaner, cosmetic preparations, etc.
Sulfram N	Ultra Chemical Works	Sod. salt of dialkyl naphthalene sulfonic acid	Wetting	Paste	55%	anionic	Non-foaming, acid and alkali stable. Textiles, for wool carbonizing and mercerizing cotton.
Sulfram P*	Ultra Chemical Works						
Supersulfate FS Surf (retail)	Laurel Soap Co. Lever Bros. Co.	Sulfated aryl alcohol Sod. alkyl aryl sulfonate, plus builders	Detergent Detergent	Powder		anionic anionic	A heavy duty household cleanser. See also Tide, Fab. etc.
Surfax 1266	E. F. Houghton & Co.	An alkyl aryl sulfonate blended	Wetting Penetrating	Liquid	40%	anionic	Textiles, leather.
Surfax 1288	E. F. Houghton & Co.	Aryl sulfo propionic ester sulfonate	Wetting Penetrant	Liquid	60%	anionic	Moderately water soluble, pH of 1% sol. 6-7. Use: Textiles.
Surfax WO	E. F. Houghton & Co.	Highly sulfated fatty ester	Wetting Penetrant	Liquid	64%	anionic	Water soluble, insoluble in kerosene. Uses: Textiles, inks, paper, etc.
Surfax TR	E. F. Houghton & Co.	Dialkyl aryl sulfonate	Wetting Penetrating	Liquid	50%	anionic	Very water soluble. Not stable to such salts as MgCl ₂ , CaCl ₂ , MgSO ₄ , etc. Uses: Textiles, inks, paper.
S/V Wetting Agent 1959	Socony-Vacuum Oil Co.	Alkyl aryl sulfonate	Detergent Wetting	Solid		anionic	Stable in 10% acid and 25% alkali, although salted out by the latter. Use: General wetting agent.
Swerl	B. T. Babbitt, Inc.	Alkyl aryl sulfonate	Detergent	Powder		anionic	Manufactured by National Aniline and distributed by B. T. Babbitt, Inc. Similar to Nacconol.
Synotol*	E. F. Drew & Co.						
Syntergen MV	Hart Products Co.	Sulfated fatty acid amide	Detergent Wetting	Paste		anionic	A water soluble scouring agent for the textile trade.
Tamol N	Rohm & Haas Co.	Sod. salt of a naphthalene sulfonic acid condensed with HCHO	Dispersing	Powder	100%	anionic	Also German product under same name. A dispersant for pigments, carbon black, clay, etc. Formerly Tamol P.

* Discontinued

Synthetic Detergents...

Trade Name	Manufacturer	Class and Formula	Main Uses	Form	% Conc.	Type	Remarks
Teel (retail)	Procter & Gamble Co.		Detergent	Liquid		anionic	Dentifrice.
Teepol (English) (Flakes & Pdr.)	Shell Chemical Ltd., London England	Secondary sod. alkyl sulfate	Detergent Wetting	Liquid	22%	anionic	From cracked petroleum olefines by sulfation. Detergency inferior to primary alcohol sulfates. Wetting power superior to them. Uses: General cleaning, cosmetics, paints, rubber, etc. See also U. S. Pat. 2,422,613. Also available as a double strength 42% active powder and flake.
Teepex (English)	Shell Chemical Ltd., London England	Secondary sod. alkyl sulfate	Detergent	Paste	42%	anionic	Same as Teepol in a paste form. See also Lensex.
Tegin 515	Goldschmidt Chem. Co.	Glycerol monostearate	Emulsifying	Solid	100%	nonionic	Non-self emulsifying. Uses: cosmetics, etc.
Tegacid	Goldschmidt Chem. Co.	Glycerol monostearate	Emulsifying	Solid	100%	nonionic	Self emulsifying. Uses: Cosmetics, etc.
Tegin P	Goldschmidt Chem. Co.	Propylene glycol monostearate	Emulsifying		100%	nonionic	Non-self emulsifying. Uses: Cosmetics, pharmaceuticals.
1011	E. F. Drew & Co.	A secondary amide of lauric acid	Detergent Wetting	Liquid	100%	nonionic	See also Wetsyn.
Tenesol	Charlotte Chemical Laboratories		Wetting				Textiles.
Tenlo 10	Griffin Chemical Co.	Fatty acid amide ester condensate	Emulsifying	Liquid		nonionic	An emulsifier for insecticides.
Tensol	Synthetic Chemicals, Inc.	Sulfonated naphthalene alkyl ether	Wetting	Paste			Textiles, leather, rubber.
Tergitol 08	Carbide & Carbon Chemicals Corp.	Sod. sulphate deriv. of 2-ethyl hexanol-1 $C_6H_5CH_2CH_2SO_3Na$	Wetting Emulsifying	Liquid	38%	anionic	Very stable to high electrolyte. Mercerizing, penetrant.
Tergitol 4	Carbide & Carbon Chemicals Corp.	Sod. Sulfate deriv. of 7-ethyl-2 methyl-undecanol-4 $C_{11}H_{23}$	Wetting Emulsifying	Liquid	25%	anionic	Used in emulsion work where electrolyte is between 2 to 5%, or acid content between 1-10%. Carbonizing wool.
Tergitol 7	Carbide & Carbon Chemicals Corp.	Sod. sulfate derivative of 3, 9-diethyl tridecanol-6	Wetting Emulsifying	Liquid	25%	anionic	Used where electrolyte is below 1%. Textiles-hypochlorite bleaching of, etc.
Tergitol EH	Carbide & Carbon Chemicals Corp.		Wetting Penetrating	Liquid		anionic	Developed for concentrations of inorganic salts higher than Tergitol 08. Use: electrolyte baths, mercerizing of cotton, metal cleaners, etc.
Tergitol P-28	Carbide & Carbon Chemicals Corp.	Sod. di (2-ethyl hexyl) phosphate	Wetting Emulsifying	Liquid	25%	anionic	Unstable in acid, stable in alkali. Uses: Textiles kier boiling, dyeing.
Terjolate (retail)	Rare Chemicals, Inc. (Subsidiary of Nopco Chem. Co.)	Sod. octadecanoate N-diethanol, N-alkylamide et al	Detergent	Liquid		anionic	A companion product of Acidolite and Dermolate. Non-irritating to the skin. Uses: General purpose cleanser for household, etc. See also pHISoderm
Tern (retail)	Tern, Inc.		Detergent	Liquid		nonionic	Household cleaner for woollens, etc.
Tetranol	Arkansas Co.	Highly sulfated fatty ester.	Wetting Penetrating	Liquid	50%	anionic	pH of 1% sol. 6.0. Use: Textiles as levelling agent in dye baths.
Tetrosan	Onxy Oil and Chemical Co.	Alkyl dimethyl 3:4-dichlorobenzyl ammonium chloride. Also contains alkenyl dimethyl ethyl ammonium bromide	Germicide		60%	cationic	Sanitizing agent.
Texol	Burkart-Schlier Chemical Co.	A fatty acid condensate	Detergent Wetting				A detergent for the textile trade.
Tide (retail)	Procter & Gamble Co.		Detergent	Granular		anionic	White built detergent with good sudsing properties. Heavy duty type.

* Discontinued

Synthetic Detergents...

Trade Name	Manufacturer	Class and Formula	Main Uses	Form	% Conc.	Type	Remarks
Titadine TA	Titan Chemical Products, Inc.	Mixture of alkyl naphthalene sulfonic acid ester and sulfated alcohol	Wetting				Textiles, leather, paper, household detergents, etc.
Titamine TCP	Titan Chemical Products, Inc.	Derivative of sulfonated alcohol	Wetting				Textiles, leather, paper, household detergents, etc.
Titan Decitrene	Titan Chemical Products, Inc.	Alkylated aromatic sulfonate	Wetting				Textiles, leather, paper, household detergents, etc.
Titanole RMA	Titan Chemical Products, Inc.	Alkylated aryl sod. sulfonate	Wetting				Textiles, leather, paper, household detergents, etc.
Titazol SA	Titan Chemical Products, Inc.	alkyl naphthalene sulfonate	Wetting				Textiles, leather, paper, household detergents, etc.
Toluene Sod. Sulfonate	Wyandotte Chemicals Corp.	As named	Wetting Hydrotrope	Powder	94%	anionic	Similar in use to Xylene, Cymene and Benzene Sod. sulfonate. A solubilizing agent. Also available as a 41% active solution.
Trend (retail)	Purex Corp., Ltd.	An alkyl aryl sulfonate, plus builders	Detergent	Powder		anionic	General type household cleaner.
Trex 40, 45, 60, 80	Griffin Chemical Co.		Emulsifier	Liquid Paste Solid			Emulsifier for insecticides. Trex 60 and 80 for chlordane in a kerosene base. Trex 45 for toxaphene, Trex 40 for DDT, etc.
Triton B-1956	Rohm & Haas Co.	Phthalic glycerol alkyd resin	Emulsifier Dispersant	Liquid	100%	nonionic	Oil and water soluble. Useful for insecticidal sprays.
Triton C-50*	Rohm & Haas Co.						Discontinued.
Triton NE	Rohm & Haas Co.	Alkylated aryl polyether alcohol	Detergent Wetting Emulsifying	Liquid	33%	nonionic	Aqueous solution of Triton X-100 and acceptable for such applications where an aqueous solution may be used.
Triton X-45	Rohm & Haas Co.	Alkylated aryl polyether alcohol Possibly: $\text{O}(\text{CH}_2\text{CH}_2\text{O})_n\text{CH}_2\text{CH}_2\text{OH}$ $-\text{CH}_2\text{CH}_2(\text{CH}_2)_n\text{CH}_2\text{C}(\text{CH}_3)_3$	Emulsifier	Liquid	100%	nonionic	Oil soluble, water insoluble. Insecticidal sprays for agriculture; dry cleaning, etc.
Triton X-100	Rohm & Haas Co.	Alkylated aryl polyether alcohol	Wetting Detergent Emulsifying	Liquid	100%	nonionic	Insecticidal and agricultural sprays. Industrial cleaners, fire fighting, paper processing, textiles, etc.
Triton X-120	Rohm & Haas Co.	Alkylated aryl polyether alcohol	Wetting Dispersing	Powder	40%	nonionic	In insecticidal and agricultural wettable powders.
Triton X-155	Rohm & Haas Co.	Dimeric alkylated aryl polyether alcohol	Wetting Dispersing	Liquid	100%	nonionic	Oil and water soluble. Agricultural sprays, general emulsifier, rubber processing.
Triton X-166	Rohm & Haas Co.	Alkylated aryl polyether alcohol	Wetting	Powder	12½%	nonionic	Insecticidal sprays, etc.
Triton X-200	Rohm & Haas Co.	Sod. salt of alkylated aryl polyether sulfonate (See also Triton X-100)	Detergent Wetting	Liquid	28%	anionic	Cosmetics, household cleaners, rubber processing.
Triton X-301	Rohm & Haas Co.	Same as Triton X-300 without isopropanol	Detergent	Paste	20%	anionic	Cosmetic, household and industrial cleaners.
Triton X-400	Rohm & Haas Co.	Stearyl dimethyl benzyl ammonium chloride	Emulsifier Wetting	Paste	25%	cationic	Hair rinse, emulsions for industrial use, rubber compounding, textile softener.
Triton X-770 Conc.	Rohm & Haas Co.	Sod. salt of alkylated aryl polyether sulfate	Detergent Wetting Penetrant	Liquid	30%	anionic	Household and industrial cleaners, fire fighting, metal and paper processing. Contains 22½% isopropanol.
Triton W-30 Conc.	Rohm & Haas Co.	Sod. salt of alkylated aryl polyether sulfate	Wetting Penetrating	Liquid	27%	anionic	Contains 27% isopropanol. Levelling agent for waxes, polishes, textiles, rubber compounding.
Triumph	Armour & Co.	Poly oxyethylene ester of a fatty acid	Detergent Wetting	Powder	17%	nonionic	Active varies 14 to 20%. Use: Laundries.

* Discontinued

Synthetic Detergents...

Trade Name	Manufacturer	Class and Formula	Main Uses	Form	% Conc.	Type	Remarks
Turco Acidose	Turco Products, Inc.	Alkyl aryl sulfonate	Detergent Wetting				Car washing, pickling solutions.
Tween 20	Atlas Powder Co.	Sorbitan monolaurate polyoxyethylene derivative	Emulsifying	Liquid	100%	nonionic	Water soluble. See also G-series.
Tween 21	Atlas Powder Co.	Sorbitan monolaurate polyoxyethylene derivative	Wetting Dispersing	Liquid	100%	nonionic	Acid stable dispersing agent.
Tween 40	Atlas Powder Co.	Sorbitan monopalmitate polyoxyethylene derivative	Emulsifying		100%	nonionic	Water soluble. See G-series.
Tween 60	Atlas Powder Co.	Sorbitan monostearate polyoxyethylene derivative	Emulsifying	Liquid	100%	nonionic	Less hydrophilic than Tween 20 or 40.
Tween 61	Atlas Powder Co.	Sorbitan monostearate polyoxyethylene derivative	Emulsifying	Paste	100%	nonionic	The polyethylene condensate has a shorter chain than Tween 60 and is less water soluble.
Tween 65	Atlas Powder Co.	Sorbitan tristearate, polyoxyethylene derivative	Emulsifying	Paste	100%	nonionic	Water dispersible.
Tween 80	Atlas Powder Co.	The monooleate of sorbitan polyoxyethylene derivative	Emulsifying	Liquid	100%	nonionic	Oily liquid. Resembles Tween 20 in solubility.
Tween 81	Atlas Powder Co.	Similar to Tween 61, shorter side chain	Emulsifying	Liquid	100%	nonionic	Water dispersible.
Tween 85	Atlas Powder Co.	The trioleate of sorbitan polyoxyethylene derivative	Emulsifying	Liquid	100%	nonionic	Less water soluble than Tween 80, more soluble than Span 85.
Twitchell 7250 Oil	Emery Industries, Inc.	Sulfated fatty acid derivative	Emulsifying	Liquid	100%	nonionic	Use for replacement of sulfonated olive and castor oils. Formerly known as Twitchell Oil E 476R.
Twitchell 7231 Oil 7240 Oil	Emery Industries, Inc.	Sulfonated mineral oil	Emulsifying	Liquid	100%	nonionic	Textile finishing. Formerly the 7231 Oil was known as 3X, and the 7240 as 507.
Ultrapone DL	Ultra Chemical Works	Stearamide of diethylene triamine	Emulsifying	Liquid	100%	cationic	Water dispersible. Oil and water emulsifier.
Ultrapone LR	Ultra Chemical Works			Liquid			
Ultrapone S	Ultra Chemical Works	Amine condensate	Detergent Emulsifier	Liquid	95%	nonionic	Textile, cosmetics, household.
Ultravon K, W	Ciba Co.	Heptadecyl benzimidazol comp.	Detergent	Powder		anionic	Textile. Ultravon W is a disulfonate;—K is a monosulfonate.
Ultrawet 40*	Atlantic Refining Co.						
Ultrawet DS	Atlantic Refining Co.	Alkyl aryl sulfonate	Detergent	Flake	85%	anionic	Medium molecular weight; better solubility than Ultrawet K series.
Ultrawet K	Atlantic Refining Co.	Alkyl benzene sod. sulfonate	Detergent	Flake	85%	anionic	High molecular weight. High foam and detergency.
Ultrawet SK	Atlantic Refining Co.	Alkyl benzene sod. sulfonate	Detergent	Bead	35%	anionic	Ultrawet K base plus sod. sulfate.
Ultrawet 30 DS	Atlantic Refining Co.	Alkyl benzene sod. sulfonate	Detergent Wetting	Liquid	25%	anionic	Liquid form of Ultrawet DS.
Ultrawet 30 E	Atlantic Refining Co.	Alkyl benzene sod. sulfonate	Detergent Wetting	Liquid	25%	anionic	Low molecular weight; excellent solubility.
Ultrawet 35K	Atlantic Refining Co.	Alkyl benzene sod. sulfonate	Detergent Wetting	Liquid	31%	anionic	Liquid slurry. Form of Ultrawet K.

* Discontinued

Synthetic Detergents...

Trade Name	Manufacturer	Class and Formula	Main Uses	Form	% Conc.	Type	Remarks
Unitex	Commonwealth Color and Chemical Co.	Sod. salt of alkylate aromatic sulfonate	Detergent		27%		Textiles.
Vel (Retail)	Colgate-Palmolive-Peet Co.	The sodium salt of a sulfated mono-glyceride	Detergent	Powder	31%	anionic	See also Dreft, or other retail products.
Versene	Bersworth Chem. Co.	Sod. salt of ethylenediamine tetra acetic acid	Sequestering	Liquid	34%	anionic	A diamino tetracarboxylic acid salt in the same class as Nullapon B, Sequestrene, etc.
Victamine-C	Victor Chemical Works	Substituted amide of alkyl phosphate $\begin{array}{c} \text{R-NHP} \text{---} \text{O} \text{---} \text{OR} \\ \text{R} \text{---} \text{C} \text{---} \text{NH}_2 \text{R} \end{array}$ $\text{R} = \text{C}_{12}\text{H}_{25}$	Emulsifying Finishing	Solid Wax	100%	cationic	Textile softening agent. Also available in pre-dispersed form at lower concentration.
Victamine D	Victor Chemical Works	Same as Victamine-C with alkyl group $\text{C}_{12}\text{H}_{25}$	Emulsifying Finishing	Solid Wax	100%	cationic	Textile softening agent. Oil additive for anti-rust properties.
Victawet 12	Victor Chemical Works	$\text{R-O-P} \text{---} \text{O} \text{---} \text{OR}'$ R is medium alkyl group R' is water solubilizing group	Wetting Penetrant Dispersing	Liquid	100%	nonionic	Use: Package dyeing of nylon, acid type cleaners, starch coatings. Non-foaming.
Victawet 35B	Victor Chemical Works	$(\text{Octyl})_3\text{Na}_3\text{P}_3\text{O}_{10}$ octyl = 2-ethyl hexyl	Wetting Penetrating	Paste	70%	anionic	Textiles, particularly vat dyeing. Non-foaming.
Victawet 58B	Victor Chemical Works	$(\text{Capryl})_3\text{Na}_3\text{P}_3\text{O}_{10}$	Wetting Dispersing	Paste	70%	anionic	Penetrant, providing moderate foam.
Victicide C	Victor Chemical Works	Organic phosphate	Wetting Fungicide	Paste	100%	cationic	As a fungicide in textile and agricultural sprays.
Warco A-97*	Warwick Chemical Co.	Fungicide	Fungicide				
Warco A-141*	Warwick Chemical Co.	Detergent	Detergent	Liquid		nonionic	
Warcofix*	Warwick Chemical Co.	Quaternary amm. compound	Wetting				
Warcosan	Warwick Chemical Co.	Sulfated ester	Wetting	Liquid		anionic	Textiles; rewetting and finishing agent for sanforizing.
Warcosol NF	Warwick Chemical Co.	Sulfated ester	Wetting	Liquid		anionic	Textiles; dyeing with vat colors.
Warcosol 60S	Warwick Chemical Co.	Alkyl naphthalene sod. sulfonate	Wetting	Liquid		anionic	Textiles.
Warcosol Powder Conc.	Warwick Chemical Co.	Alkyl naphthalene sod. sulfonate	Wetting	Powder		anionic	Textiles; wool carbonizing.
Warcowet A*	Warwick Chemical Co.		Wetting				Poor foaming. Very stable in acid and alkali.
Wetanol	Glyco Products Co.	Mod. sod. salt of sulfated fatty alcohol	Penetrating Wetting	Solid	45%	anionic	General purpose for creams, leather, paper, etc.
Wetsit	Jacques Wolf & Co.	Alkylated aromatic sulfonate	Wetting Penetrating	Liquid	65%	anionic	Textiles; paper.
Wetsyn	E. F. Drew & Co.	A secondary amide of lauric acid	Detergent Wetting	Liquid	30%	nonionic	Good lathering. Viscosity is maintained on dilution.
Xylene Sod. Sulfonate	Wyandotte Chemicals Corp.	As named	Hydrotrope	Liquid Solid		anionic	See also Naxonate 4L and G.
Xynocol*	Onyx Oil and Chemical Co.						
Xynomine (BM)	Onyx Oil and Chemical Co.	Sulfonated fatty acid condensate	Detergent Wetting	Paste	33%	anionic	Textile processing. Household detergent. Xynomine BM is a powder.

* Discontinued

New Soaps Are Introduced at Chicago Toiletries Show

AN upswing in sales of toilet goods was forecast by manufacturers of soaps, cosmetics and perfumes, who participated in the 7th annual toilet goods show in Chicago, Aug. 28 to Sept. 2. Sponsored by the Chicago Associated Toiletries Salesmen, the show brought nearly 100 exhibitors and more than 1,000 buyers to the Palmer House for the six-day affair.

"There is no indication that business is going to be bad," was the way a spokesman for one manufacturer put it. A survey of factors affecting his company, he said, has revealed only one obstacle to improved business, that being the federal excise tax on cosmetics. If that tax were removed, he declared, an increased volume of toiletries sales would follow immediately.

While department store sales have been reported falling off, the drop in sales at toiletries counters, he pointed out, has been much less than the general store-wide average. And that drop, he added, has not been large, judging from federal reports of cosmetics tax receipts. Sales of heavy goods, like refrigerators, he felt, have reached the saturation point and, with plenty of consumer money still in circulation, he was confident that much of it will be expended for the perfumes, soaps, beauty accessories and other related items, which are now abundantly available.

Buyers who were present from retail stores throughout the midwest also appeared to share in the optimism as to the future. This was indicated, an official of the sponsoring salesmen's association said, by the way in which visitors were placing orders. In the first two days of the show, he said, he had written more business than for the entire period of any one of the organization's previous six annual shows. Other exhibitors, he asserted, were reporting similar experiences.

Contributing to the Chicago

show's success, this official of the C.A.T.S. said, is the fact that, as the years have passed, the affair is becoming better known throughout the midwest and the country at large. Manufacturers and distributors of toiletries cannot reach every town by personal calls, he explained, and store buyers have discovered that the Chicago show offers opportunity to examine full lines and pick up new items about which they might otherwise not learn. By bringing the buyers to Chicago, manufacturers are also making a substantial reduction in their distribution costs, he asserted.

Visits to the display rooms of the various soap manufacturers revealed that the current tallow situation has its brighter side. Taking advantage of its abundance, some soap makers are bringing out old, familiar brands, that had been dropped when supplies were short, while others are adding to their lines, particularly in the field of novelty soaps.

This was noticeable in the Lightfoot, Schultz & Co. exhibit, where 35 novelty soap items were displayed. Seventeen of them, according to Frank Heinemann of the New York sales staff, are new this year and their manufacture has been made possible because tallow prices, as he expressed it, "are now in the buying range."

Lightfoot's offering included

Novelty soap item introduced at the Chicago Toiletries Show is the mock suitcase (right) which contains 25 guest size hotel soaps with authentic wrappers. Colgate-Palmolive-Peet Co., Lever Brothers, Iowa Soap Co. and Procter & Gamble supply the soap. The Weatherman, Chicago, is the originator of the idea.



several famous repeaters, such as "June Roses," "Elsie, the Cow," and Santa Claus, while among new items were an airplane, cowboy gun, football, giant strawberry, four bears (playing bridge) and a Christmas surprise stocking containing four novelty soap designs.

Among new items in the \$1 line were boxes marked "His" and "Hers," each containing two cakes of hard milled soaps, appropriately ornamented with designs of athletic equipment or articles of feminine interest. After its premier display here, distribution of this item was to begin later in September, Mr. Heinemann said. Another new design was a soap decoy duck, weighing three-quarters of a pound, which is being suggested as a substitute for the traditional necktie on Father's Day or other gift giving occasion. In addition to Mr. Heinemann, the display was staffed by Jay Salomon and M. B. Hauck.

Hewitt Soap Co., Dayton, O., has restored to its lines two popular brands, one the familiar bag of lemons, now packaged six in a set, in transparent reusable plastic bags, and the other the "Omnibus" cake, originally put out years ago by the Kirk Soap Works of Chicago. Hewitt's bath crystals are also being offered in a three pound reusable refrigerator bag, while cartons for several other standard items have been newly designed.

Robert Clapp, Chicago district manager, who was in charge, called attention to the surprise gift to purchasers of the Hewitt "Dawn" soap

(Turn to Page 65)

TURNER

WETTING AGENTS

ANIONIC

(For Copious Suds)

TYPE: ALKYL ARYL SULFONATE

FORMS: FLAKE, GROUND
LIQUIDS and POWDER

ACTIVE ORGANIC: 40%-50%-70%

NON-IONIC

(For Controlled Suds)

TYPE: POLYOXYETHYLENE
FORM: LIQUID
ACTIVE ORGANIC: 100%

TURNER Detergents are characterized by rapid solubility, clarity of solution and desired absence of turbidity.

Dry forms are white in color. Hence they blend (hide) better in your finished product.

Liquid concentrates are amine neutralized and completely salt free. No filtration required.

Powdered material is remarkably free from objectionable dust.

Headquarters for Dispersing,
Foaming, Spreading and Wetting
Agents.

OUR EXPERIENCED TECHNICAL
STAFF AND FACILITIES ARE
ALWAYS AT YOUR DISPOSAL.

Serving Industry Since 1861

JOSEPH TURNER & CO

83 Exchange Place, Providence, R. I.

RIDGEFIELD, NEW JERSEY

435 N. Michigan Ave., Chicago, Ill.

Reinitz Soap Corp. Is Sold

The sale of Reinitz Soap Corp., Long Island City, N. Y., to Denis I.



DENIS I. DUVEEN

Duveen, until recently joint managing director of Ashe Laboratories, Ltd., of London, manufacturers of "Bandbox" shampoo and detergents, was announced recently. Mr. Duveen succeeds F. Reinitz as president. Mr. Reinitz will act as a consultant to the new owner. D. J. Warner continues as sales manager and no changes in personnel are contemplated. Mr. Reinitz has operated the firm for about the past 17 years. The new owner and head is a Fellow of the Royal Institute of Chemistry.

Up British Soap Ration

The British Minister of Food, London, England, recently announced that because of improved supplies of inedible oils and fats from British Colonies and other sterling area countries, the domestic soap ration for the eight-week period which begins Nov. 6 will be increased. He stated, no dollar expenditures were to be incurred as a result of the increase. The Minister of Food also announced that as a result of an improvement in the production of synthetic detergents, it has been de-

cided, in consultation with the Board of Trade, to remove control from soap substitutes packed for retail trade.

Wrisley Earnings Up

Wrisley P. Oleson, president of Allen B. Wrisley Co., Chicago, told stockholders, at their meeting recently that "prospects for fall business appear favorable, with expectation of normal upswing in seasonal and holiday buying, and comparatively stable markets on fats and oils." For the 28 weeks ending July 31, net profits of the Chicago soap and toilet goods company were \$31,309, Mr. Oleson reported. This compared with a net loss of \$422,853 for the 26 weeks ended June 26, 1948.

Downs Solventol Sales Hd.

Howard B. Downs, advertising director for the past two years of Solventol Chemical Products, Detroit, was recently named general sales manager of the firm, which makes synthetic organic cleaning compounds. He has been with Solventol since 1937, when he joined the company as a member of the sales staff. In his new post, Mr. Downs will coordinate sales on "Solventol" in the retail, bulk and industrial fields.

HOWARD B. DOWNS



New P&G Sales Department

The establishment of a new bulk products sales department, which



JOSEPH B. CROWE

will handle the marketing of the company's processing and finishing products for the textile industry, was announced recently by Procter & Gamble Co., Cincinnati. Joseph B. Crowe, who for 23 years has been associated with the organization's textile research and customer service departments, has been named manager.

Mr. Crowe was graduated from Lowell Textile Institute in 1925. Following a year of teaching on the staff of the Institute, he joined Procter & Gamble Co. and was assigned the task of organizing a textile research laboratory in Paterson, N. J. He left this group in 1930 to join the main textile research department at Ivorydale, O.

Tech Soap Co. in New Site

Tech Soap Manufacturing Co., Chicago, recently announced that it had acquired new and considerably larger manufacturing and office facilities with the purchase of a large industrial plant at 73rd St. and South Chicago Ave., Chicago. The plant consists of approximately 400 feet along South Chicago Ave., with ample freight loading facilities at the rear. One large



WINTER-PHENE

DISINFECTANT-DEODORANT WITH A DELIGHTFUL FRESH MINT ODOR



Refreshing
as a mint julep



Do your premises have D. O.*? Do your customers and employees whisper behind your back? Do persons entering your building or rest rooms cringe because of overpowering, disagreeable disinfectant odors? Have you often wondered why someone doesn't make a disinfectant that didn't smell like one? YOUR PROBLEM IS SOLVED. WE DO!

WINTER-PHENE is America's first and finest mint odored germicide. Compounded with pure U. S. P. oil of spearmint and oil of peppermint—the very same oils used in flavoring the best chewing gum. WINTER-PHENE with its delightful, delicious fragrance of fresh cut mint is an extremely powerful germ killer—even kills the resistant organisms causing athlete's foot disease!! Each gallon of WINTER-PHENE makes 100 gallons of powerful, yet safe, disinfectant solution!!

WINTER-PHENE is perfect for disinfection of floors, walls, equipment, rest rooms, locker rooms, gymnasiums, etc. and makes a most refreshing prophylactic footbath solution.

WINTER-PHENE mixes with water to form milky, permanent solutions—use it anywhere for disinfecting and deodorizing in one operation. WINTER-PHENE is available at the best Janitor and Sanitary Supply Houses in either bulk or small containers. Order WINTER-PHENE now and do away forever with D. O.**

*Disinfectant Odor
**The same old Disinfectant Odor

If your favorite janitor supply house doesn't have WINTER-PHENE in stock please send us the attached coupon and we will see that your requirements are taken care of.

JAMES VARLEY & SONS, INC.
1200 Switzer Ave., St. Louis 15, Mo.

Please send sample, prices and other information on WINTER-PHENE to:

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Address..... Zone.....
City..... State.....
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building contains approximately 25,000 square feet for manufacturing purposes. Another building of 8,000 square feet will be used to house offices. The company's offices have been moved to the new address at 7310 South Chicago Ave., Chicago 19, and the plant is now in the process of being set up. The company was formerly located at 125 W. 46th Place.

Harold L. Aronson, president of Tech, acquired the firm about two years ago. The concern specializes in the manufacture of potash soaps such as liquid toilet soaps, liquid scrubbing soaps, jelly soaps, and liquid, powder and jelly detergents, disinfectants, deodorants and insecticides.

Alfred C. Aronson is vice-president. Harold L. Aronson also is associated with his father in the company.

Palmers, Ltd. in New Plant

Palmers, Ltd., Montreal, Canada, recently moved into their larger, modern plant at 723 Wellington St. They had been located at 750 Vitre St., Montreal, for many years. The company is a prominent Canadian manufacturer of toilet soaps, perfumes and cosmetics.

James J. Clifford Dies

James J. Clifford, New England sales representative for Tussy Cosmetics, New York, died recently in Boston at the age of 48. Formerly with Houbigant, Inc., Mr. Clifford had been in the cosmetic and toiletries field for the past 25 years. He was past president of the New England Toilet Goods Association and a member of the board of governors of the same group.

Universal Sells Division

Universal Laboratories, New York, recently sold its cosmetic division to Nestle-LeMur Co. Morris H. Gotthilf, president and chairman of Universal said that this division had "large operating losses for the past years."

"Beauty in the Morning," Universal's beauty treatment facial soap, was sold to Manning Exton of Westport, Conn. Exton is expected to assign this product to a corporation which was not named, Mr. Gotthilf said.

Kissner in Lever Post

F. H. Kissner, formerly vice-president in charge of finance of Textron, Inc., recently joined Lever



F. H. KISSNER

Brothers Co., Cambridge, Mass., as assistant treasurer. Prior to joining Textron, Mr. Kissner was Deputy Director of the economic division, American Military Government, in Berlin, Germany. In this post he served as Deputy to Major General William H. Draper, Jr., chief of the Economic Division, Control Council for Germany. Previous to this assignment, Mr. Kissner handled contract renegotiations as a member of the staff of the Deputy Chief of Air, United States Air Force. Before his government service, Mr. Kissner was associated for 10 years with Price, Waterhouse and Co. in Pittsburgh, as contract manager. A native of Mauch Chunk, Pa., he was graduated from Harvard University.

Markets New Detergent

A new detergent said to be especially suitable to the Pittsburgh district was announced recently by Russell Brothers, Chemical Division of Russell Supply Co., Pittsburgh. Called "RSL 101," the detergent contains several cleaning ingredients, wetting agents and a softening agent.

W. Emmett Bittner Dies

Funeral services were held recently for W. Emmett Bittner, vice president of purchases of Diamond Alkali Co., Cleveland, who died Aug. 2, following an operation in Mercy Hospital, Pittsburgh. He was an active member of the Pittsburgh Pur-

chasing Agents Association, serving successively as a director, vice president and president of the group. His entire business career was spent with the Diamond Alkali Co., which he joined in 1916. Surviving are his wife, Mildred, three sons and two daughters.

C-P-P Honors Hislop

David Hislop, who has been employed in the printing department of Colgate-Palmolive-Peet Co., Jersey City, since 1899, was honored recently with a testimonial dinner upon completion of 50 years' service with the organization.

Weil Joins Atlantic

Dr. Lester L. Weil, formerly associated with the research staff of E. F. Drew & Co., New York, recently joined Atlantic Research Laboratories, Alexandria, Va.

Maplewood Receives Award

Maplewood Laboratories, Bridgeport, Conn., manufacturers of cleaning compounds, recently was honored with the Second Chemistry Award, presented annually by *Chemical and Engineering News*, official publication of the American Chemical Society. The award was made by Dr. Walter J. Murphy, the publication's editor, at a dinner given by the Society's western Connecticut section in Bridgeport.

Calgon Issues Bulletin

A bulletin on water-conditioning for washing machines titled "The New Way to Machine-Wash Your Clothes" currently is being distributed by Calgon, Inc., Pittsburgh. The bulletin covers chemical methods of treating water for easier and more effective washing.

Rayve Accepted By AMA

"Rayve Home Permanent," a product of the Pepsodent Division of Lever Bros. Co., Cambridge, has been accepted by the Committee on Cosmetics of the American Medical Association it was announced recently. "Rayve" is the first home cold wave which has met the requirements of the Committee to date, it was announced.

Green DCAT Chairman

Harold C. Green of L. Sonneborn Sons, Inc., New York, was elected chairman of the Drug, Chemical and



HAROLD C. GREEN

Allied Trades Section of the New York Board of Trade at the DCAT's 59th annual meeting held at Shawnee Inn, Shawnee-on-Delaware, Pa., Sept. 22-24. He succeeds Robert B. Magnus of Magnus, Mabee & Reynard, Inc., New York. Other officers and the executive committee include:

Vice-chairman, Charles P. Walker, Jr., of Citro Chemical Co.; treasurer, Hugh S. Crosson, McKesson & Robbins, Inc. (re-elected); secretary, Helen L. Booth (re-elected); Carl M. Anderson, assistant to the president of Merck & Co., reappointed counsel; executive committee: Murray Breese, Murray Breese Associates; Stanley I. Clark, Sterling Drug, Inc.; Paul H. Douglas, Bourjois, Inc.; James G. Flanagan, S. B. Penick & Co.; Russel J. Fosbinder, Maltbie Chemical Co.; Claude A. Hanford, Pharmaco, Inc.; Robert A. Hardt, Hoffmann-LaRoche, Inc.; William W. Huisking, Chas. L. Huisking & Co.; Robert L. Hutchins, Commercial Solvents Corp.; Charles M. Macauley, Prophy-lac-tic Brush Co.; George S. McMillan, Bristol-Myers Co.; E. L. Shattuck, Abbott Laboratories; William H. Sheffield, Jr., Innis Speiden & Co.; Fred G. Singer, E. I. du Pont de Nemours & Co., Inc.; Gerald L. Smith, American Home Products Corp.; Lloyd I. Volckening, Ivers-Lee Co.

Dr. Frederick J. Cullen, executive vice-president of the Proprietary Association of America, guest speaker at the meeting, discussed the growing trend in government toward centralization.

New Olive Oil Soap

Pompeian Olive Oil Corp., Baltimore, recently announced its initial entry in the soap field with a new

olive oil soap, known as "Pompeian 100 Per Cent Olive Oil Soap." Following successful test marketing in Baltimore, Washington, Buffalo and Miami, expanded distribution is planned for the product. The new soap will be handled through brokers and wholesalers, in super markets, independent and chain stores, and will be promoted by newspaper, point-of-sale and radio advertising.

BIMS Hold Final Outing

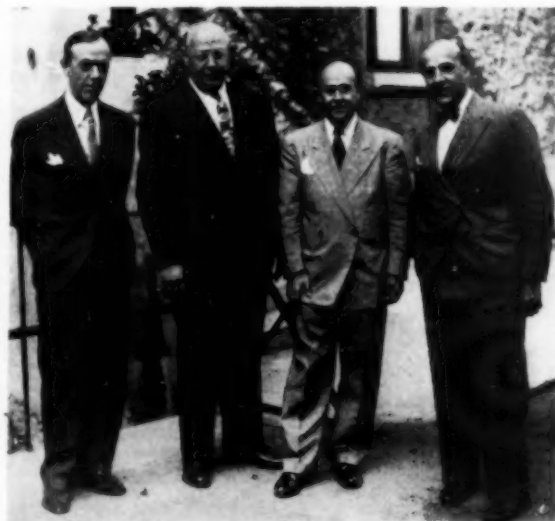
The third and final golf outing of the BIMS of New York, was held August 25, at North Hempstead Country Club, Port Washington, N. Y.. Low gross was won by Louis Bezar of Schiaparelli Parfums, Inc.; low net went to O. Dexter Neal of Hilton-Davis Chemical Co. Other prize winners included:

G. W. Sands; William W. Huisking of Charles L. Huisking & Co., Inc.; W. H. Madden; Joseph Papp; John A. Ewald, Avon-Allied Products, Inc.; Peter L. Forsman, C. H. Forsman Co.; Leonard H. Schultes, Hewitt Soap Co.; Herbert B. Sliger, Commercial Solvents Corp.; Paul E. Forsman, C. H. Forsman Co.; Sewell H. Corkran, E. N. Rowell Co.; Edward A. Bush, Bush Pan America, Inc.; Ray F. Ougheltree; Ross A. White, E. N. Rowell Co.; Dr. E. G. McDonough, Evans Chematics, Inc.; Harold S. Miner; Albert J. Bradley.

TGA Scientists to Meet

The next meeting of the Scientific Section of the Toilet Goods Association will be held at the Waldorf-Astoria Hotel, New York, Wednesday, Dec. 7. Chairman of the Section is A. B. Pacini.

J. F. Rudolph, president of Dodge & Olcott, Inc., on a four-week business trip to Europe, visited Paris for ten days to complete plans for the new DeLaire Division of Dodge & Olcott, Inc. Photographed at the Fabriques DeLaire in Issy, a suburb of Paris, from left to right are Jean DeLaire, J. F. Rudolph, Henri Robert, director of the DeLaire Division of DGO, and Francois DeLaire, director general of the Fabriques DeLaire.



P&G Names Wright

Procter & Gamble Co., Cincinnati, recently announced the appointment of Wilson Wright as manager of



WILSON WRIGHT

the company's economic research department. He succeeds N. R. Whitney, who had held this position for 27 years. Mr. Whitney will continue with the company in a consulting and advisory capacity.

Mr. Wright, who formerly had been associated with Armstrong Cork Co., Lancaster, Pa., has served on the Committee for Economic Development, and as a consultant to the President's Council of Economic Advisors. He is also the author of a textbook on business forecasting.

An economist for the War Surplus Property Administration during 1944, Mr. Whitney joined Procter & Gamble Co. in 1922. He is a member of the American Economic Assn.

Oil Chemists Annual Meeting

Oct. 31-Nov. 2 in Chicago

DETERGENTS and detergency will occupy an important part of the program of the 23rd annual fall meeting of the American Oil Chemists' Society, being held Monday, Tuesday and Wednesday, Oct. 31, and Nov. 1 and 2, at the Edgewater Beach Hotel, Chicago. The meeting, for which C. E. Morris of Armour & Co., Chicago, is general chairman, will be divided into a total of six morning and afternoon sessions, some of which will be held simultaneously. Two sessions will be devoted to detergency, three will be general, and there is to be one session each on drying oils, engineering, fat stability and analysis (analytical). Some 62 papers are to be presented, which is a record number. H. T. Spannuth of Wilson and Co., Chicago, is chairman of the program committee.

Both sessions on detergency are being held on the first day of the meeting. According to the tentative program listing, these papers are to be presented at the morning session, Oct. 31:

"The Production and Standardization of a Detergent Soil," by Jay C. Harris and Earl L. Brown, Monsanto Chemical Co.

"An Approach to a More Realistic Cotton Detergency Test," by H. L. Sanders and J. M. Lambert, General Aniline and Film Corp.

"Principles of Performance Testing of Laundry Detergents," by T. H. Vaughn and H. R. Suter, Wyandotte Chemicals Corp.

"Choice and Application of a Detergency Test Method," by W. K. Griesinger and J. A. Nevison, Atlantic Refining Co.

"Essential Elements in Synthetic Detergent Evaluation," by H. J. Wollner, American Conditioning House.

"A Comparison of Two Methods of Testing Detergents," by G. E. Barker and C. R. Kern, Atlas Powder Co.

The afternoon session on Monday, to be run concurrently with the drying oil session, will include these papers:

"Displacement Series of the Metal Chelates of the Salts of Ethylene Diamine Tetra Acetic Acid," by R. Plumb and A. Martell, Clark University, and F. C. Bersworth, Bersworth Chemical Co.

"Film Drainage: A Study of Flow Properties of Films of Detergent Solu-

tions," by G. D. Miles, J. Ross, and L. Shetdlovsky, Colgate-Palmolive-Peet Co.

"Synthetic Detergents in the Soap



V. C. MEHLENBACHER

Industry," by H. C. Borghetty and C. A. Bergman, General Dyestuff Corp.

"The Relationship of Ultraviolet Induced Peroxide Formation to Rancidity Development in Soaps," by P. Bradford and J. H. Johnson, Swift and Co.

"Modifications of the Volumetric Evolution Method for Carbonates," by N. M. Schuck and W. Koester, Procter and Gamble Co.

"Colorimetric Method for Water Soluble Silicates in Detergents," by W. J. Miller, Procter and Gamble Co.

"Mixtures of Soap and Synthetic Detergents," by Lawrence H. Flett, O. M. Morgan, and L. S. Hoyt, National Aniline Division, Allied Chemical and Dye Corp.

Other papers of interest to be given at other sessions include:

"Simplified Methods for Determining Composition of Commercial Stearic and Palmitic Acids," by R. M. Peters and W. C. Clark of Emery Industries, Inc.; "Fatty Acid Distillation: Comparison of Two Columnar Types," by F. C. Williams of the University of California and J. O. Osburn of the University of Iowa, and "Modification of Vegetable Oils IX. Purification of Technical Monoglycerides," by R. O. Feuge and A. T. Gross of the Southern Regional Research Laboratory. All three of these papers will be presented at the general session on Tuesday morning, Nov. 1.

That afternoon at the general

session a paper, "Fatty Acid Compositions of Lipids from Corn and Grain Sorgum," by A. R. Baldwin and M. S. Sniegowski of Corn Products Refining Co. will be presented.

Papers to be given at the engineering session on Tuesday afternoon include: "Solvent Extraction II. The Soaking Theory of Extraction," by H. B. Coats and George Karnofsky of the Blaw-Knox Division; "Solvent Extraction III. The Effect of Particle Size on Extraction Rate," by H. B. Coats and M. R. Wingard of Blaw-Knox Division, and "Decolorization of Tallow by Liquid-Liquid Extraction with Propane," by E. B. Moore of Lever Brothers Co.

At the final session of Wednesday afternoon, Nov. 2, there will be two papers of interest: "Solvent Refining of Fatty Oils," by M. Mattikow of Refining Unincorporated and "Two Useful Accessories to the Beckman Spectrophotometer Model DU," by T. H. McGuire and W. E. Moss of Wilson and Co.

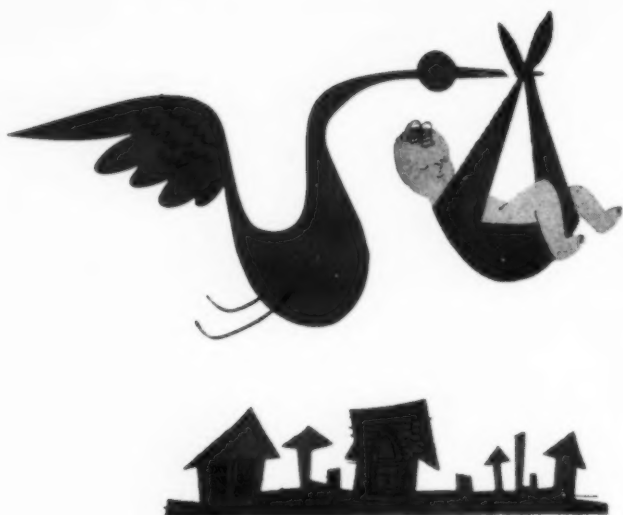
In charge of exhibits at this year's fall meeting is R. H. Rogers, Jr.

A smoker will be held Monday evening, Oct. 31, and the banquet is Tuesday evening in the Marine Dining Room.

The Governing Board of the A.O.C.S. will meet Sunday night, Oct. 30, with V. C. Mehlenbacher, Swift & Co., Chicago, president, acting as chairman.

Pennsalt R.R. Cleaner

Pennsylvania Salt Manufacturing Co., Philadelphia, currently is producing a new, acid-type powder cleaner, developed primarily for cleaning exteriors of painted railroad passenger coaches and diesel and electric locomotives. Known as "Pennsalt Cleaner AC-19," the new compound is described as being composed of "a blend of acid bases and surface active agents, essentially dustless, and easily handled." The product is said to possess good rust and stain removing properties and detergent action. It is completely soluble in cold water and rinses freely from cleaned surfaces. It can be used on windows as well as on paint and other surfaces.



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or too many
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It is over fifty years since the Givaudan laboratories first produced aromatic chemicals for soap perfumery, and we haven't stopped for a moment since. This doesn't make us a bunch of old fogies, but we have the old timer's know-how, together with a unique store of special experience. Our chemical purity plus olfactory control are your assurance of quality. That's why Givaudan sets the pace in aromatic chemicals, as we do in other products for soap perfumery.

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Lever Brothers to Move Headquarters to New York

LEVER BROTHERS CO. will move Dec. 1 from its headquarters in Cambridge, Mass., to New York City, where it plans to erect a 20-story "Lever House" at a cost of \$6,000,000, Charles Luckman, president, announced Oct. 5. Simultaneously with the move of the parent company, the offices of three subsidiaries, Pepsodent Co., Chicago; John F. Jelke Co., Chicago; and Harriet Hubbard Ayer, Inc., of New York, will be moved into the new centralized offices in New York. Operation of the manufacturing units of the Company and its subsidiaries will not be affected by this change.

Construction of Lever's new headquarters building on the west side of Park Avenue between 53rd and 54th Streets, is in addition to the \$55,000,000 plant expansion program announced in July at ground-breaking ceremonies for the company's Los Angeles plant, Mr. Luckman declared. In commenting on this further expansion, he said: "During the past three years we have almost doubled the volume of our soap and food business. We have acquired three important subsidiary companies. We have developed and successfully introduced four new products. We have greatly expanded our manufacturing facilities. We have increased our total personnel by 34 per cent. Consequently we have outgrown our present quarters and need greatly expanded facilities."

Mr. Luckman also announced that Lever Brothers will (1) erect a \$3,000,000 technical research laboratory building at Edgewater, N. J., where all the research work of Lever Brothers Company and its subsidiary companies will be centralized, (2) construct a \$2,000,000 margarine unit at Hammond, Ind., and (3) spend \$2,000,000 for expansion of its Cambridge soap manufacturing plant, increasing capacity and modernizing it.

Work on the first two projects will be started immediately. The Cam-

bridge plant expansion will be undertaken as soon as research laboratories, now located there, can be moved to the new location at Edgewater. Manufacture of Jelke products will continue at its present Chicago plant until the new Hammond unit is in operation.

Construction on the New York headquarters building will be started next spring and it is expected the building will be ready for occupancy by the Fall of 1951. Until then, temporary executive offices will be maintained at 505 Park Avenue, and temporary general offices at 80 Varick Street, in a building which is now being renovated.

Givaudan-Delawanna Is 25

In connection with the celebration this month of its 25th anniversary, Givaudan-Delawanna, Inc., New York, recently announced the occasion would be marked by visits from France of Xavier Givaudan and Sylvain Fontanes, a director and associated with the International Givaudan organization for 50 years. M. Givaudan is a co-founder of the American Givaudan firms and still plays an active role in the affairs of the company in spite of his 83 years.

The September issue of the *Givaudanian*, house magazine of Givaudan-Delawanna, Inc., carries an article, "Do Perfume Oils Affect the Stability of Emulsions." It is based on an original investigation in the company's cosmetic laboratories.

Soap Assn. Meets Jan. 25-26

The election of new directors will take place on the afternoon of the first day of the 23rd annual convention of the Association of American Soap & Glycerine Producers, to be held in New York, Wednesday and Thursday, January 25 and 26, at the Hotel Plaza. In addition on both days there will be luncheon sessions for which speakers are scheduled. The banquet will be held on Thursday night. On

Wednesday evening there will be a cocktail party, and on Thursday morning convention registrants will be guests at a breakfast sponsored by one of the magazine publishing groups. In an effort to attract women to the meeting, a special program for them is being arranged.

Chem. Exposition Dates

A number of new developments in both materials and equipment will be shown at the 22nd Exposition of Chemical Industries, being held Nov. 20 to Dec. 3, at Grand Central Palace, New York. More than 400 new chemicals and chemical specialty items will be featured at one of the exhibits. New equipment for pilot plant and commercial quantity production is to be exhibited.

New Reliable Cleaner

A new cleaning compound for general household use was announced recently under the trade name "Kleen-All" by Reliable Products Corp., West New York, N. J. The new product, which can be used for cleaning marble, asphalt, linoleum, leather, rubber, tile, porcelain, etc., comes packed in quarts, gallons, five gallons and in drums.

More Soap for N. Y. Schools

An appropriation of \$200,000 for soap and towels for children in public schools was asked recently by Mayor O'Dwyer of New York City. The sum asked in the Mayor's request to the Board of Estimate, made upon the recommendation of school authorities, would be in addition to \$150,000 already allotted for the purpose in the current school budget. If the full sum were approved, soap and towels would be available for all public school children.

Carlton Heads Minn. Mining

Richard P. Carlton, formerly executive vice-president in charge of research, engineering and manufacturing was recently elected president of Minnesota Mining & Manufacturing Co., St. Paul. He succeeds William L. McKnight, president since 1929, who has been named to the newly created position of chairman of the board.

BATH PRODUCTS • CLEANING FLUIDS and NAPHTHAS
 DISINFECTANTS • DRAWING COMPOUNDS for METAL
 WORK • EMBALMING FLUIDS • FET SPRAYS •
 and LUBRICATING OILS • and PASTE • HOSPITAL
 DEODORANTS • HOUSEHOLD • INSECTICIDES
 JANITORS SUPPLIES • LATEX
 LEATHER • LIN •
 POUNDS • M-
 and LAC •
 CUTTING OILS •
 TICS • PRESS ROLLERS •
 RUBBER • SANITARY SUPPLIES • SOAPS • STARCH
 STOCKS or TABLE SPRAYS • SULPHONATED OIL PROD-
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WHATEVER your product . . . whatever the odor—be it strong, repellent or offensive—if sales are retarded by its presence, then it's time you consulted us! As pioneers in the field of technical odorants, we have developed effective, low-cost deodorants and neutralizing compounds for scores of individual manufacturers and top-rank industries. Chances are we already have the efficient, time-tested modifier needed to bring immediate solution to your odor problem. Write our Technical Division concerning your needs.

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Economics Lab. Buys FUN

Essential Chemicals Co., Milwaukee, recently announced the sale of three of its packaged soap products used in household cleaning to Economics Laboratory, Inc., St. Paul, Minn. In making the announcement of the sale of the three proprietary soap products, James H. Wheeler, president of Essential said that the purpose of the sale was to enable his firm to specialize in industrial and institutional soaps. The three household products that were sold to Economics are FUN, Super-FUN and Tumble Suds for use in household, automatic dish and clothes washing equipment.

Economics Laboratory makes several products that are distributed through department stores and the appliance trade. The firm purchased the Essential items to "round out its line."

Essential Chemicals was founded in 1944 by Mr. Wheeler when he bought the soap division of the branch plant of Hercules Powder Co. Mr. Wheeler had been chemical division manager of the branch.

CARE Soap Drive Extended

Extension of the campaign until Dec. 1, of CARE (Cooperative for American Remittances to Europe, Inc.), to provide soap for European children was announced recently by Paul Comly French, executive director of the agency. More than 500,000 cakes of soap were obtained during the first three months of the campaign, according to Mr. French. The drive has been extended because of the continuing need of soap in Europe, he said. Lever Brothers Co., Cambridge, Mass., is cooperating with CARE in the drive for soap by providing a free cake of "Swan" soap for every two "Swan" soap wrappers sent to the Boston office of CARE.

Amm-i-dent Sales Prospects

The ammoniated anti-decay dentifrice "Amm-i-dent" will soon be doing a \$1,000,000 business with overseas countries, Walter Child, Stern Morgenthau & Co., importing and exporting firm, stated recently. Many countries, he declared, have already lifted exchange controls to permit im-

portation of the product, and others are following this action.

Soapers Accuse FTC

The Federal Trade Commission recently was charged by three soap companies with "going outside the complaint in an attempt to get a conviction." The three firms making the charge: Lever Brothers Co., Cambridge, Mass.; Procter & Gamble Co., Cincinnati, and Colgate-Palmolive-Peet Co., Jersey City, N. J., have been accused by the F.T.C. of giving lower prices to larger customers.

Lever-Unilever Income Up

English and Dutch subsidiaries of the Lever Brothers-Unilever soap combine reported a net profit of £10,458,709 (\$41,834,836) in 1948. The 1947 net profit was £8,512,144 (\$34,048,576). The two branches had a gross income of £716,508,000 (\$2,470,032,000) for the year, as compared with the 1947 figure of £479,312,000 (\$1,917,248,000). All dollar figures are on a pre-devaluation basis.

Lord Leverhulme's Estate

Viscount Leverhulme, former governor of Lever Brothers and Unilever, Ltd., London, England, who died last May in the United States, left an estate of about \$9,500,000, before devaluation, it was announced recently.

Syntomatic Names Marshall

The appointment of Robert C. Marshall to represent Syntomatic Corp., in the states of New York, Pennsylvania, Maryland, and western New Jersey, was announced recently. Mr. Marshall's headquarters are in the Land Title Bldg., Philadelphia. He is representing the company in the sale of perfume oil compounds for the soap, and related industries.

James J. Morgan Dies

James J. Morgan, 71, former president of Hall & Ruckel, Inc., New York, died recently in St. Jerome's Hospital, Batavia, N. Y. He was on a vacation trip with his wife and another couple when he suffered an attack of uremia near Buffalo. He retired four years ago as head of Hall & Ruckel.

New Vanta Shampoo

"Vanta Nionic Shampoo," a new liquid shampoo for children was announced recently by Vanta Laboratories, Waltham, Mass. Sales and distribution are being handled by Henry Thayer Co. of Cambridge, Mass., which firm developed and is licensing Vanta to make the shampoo. The product is packaged in two sizes to retail for 60 and 90 cents. In promoting the shampoo the fact that it does not sting the eyes will be featured.

New "Vanta Nionic Shampoo" for children made by Vanta Laboratories, Waltham, Mass. Product comes in two sizes that retail for 60 and 90 cents.



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COMPOSITION—Emersol processing provides a range of compositions. Emery's solid acids are available in all standard grades (single, double and triple-pressed types). Titters range from 127-131°F for Emersol 140 Palmitic Acid to 147-149°F for Emersol 150 Stearic Acid*.

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*EMERSOL 150 STEARIC ACID containing a minimum of 80% "true" stearic acid, is the latest addition to Emery's line of solid saturated fatty acids.

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STEARIC ACID • OLEIC ACID • ANIMAL AND VEGETABLE FATTY ACIDS • TWITCHELL PRODUCTS • PLASTICIZERS



New "Companions" Christmas gift package of Jean Nate, New York, features green vinylite bag containing soap, after bath lotion, and talc. Bubble bath and "Hand Tone" are also included. Unit retails for \$3.50 plus 60c tax.

To Handle "Hum"

La-Bine Brokerage Co., Toledo, was recently named area broker for "Hum," a recently introduced detergent made by Theobald Industries, Kearny, N. J.

August Edeler Dies

August Edeler, 63, analytical chemist and an employe of the Procter & Gamble Co., Cincinnati, since 1907, died early Sept. 1 in Christ Hospital, Cincinnati, following a 10-day illness. Mr. Edeler, oldest employe in point of service in the Procter & Gamble chemical division, had never missed a day of work on account of illness until Aug. 22 of this year.

A graduate of the University of Cincinnati, he was a specialist in glycerine chemistry. He was a member of Sigma Xi, the American Chemical Society, the Cincinnati Engineering Society and the Seventh Presbyterian Church.

He leaves his wife, Mrs. Marguerite Edeler, a sister, Mrs. Carl Zimmerman, and a brother, Ernest Edeler, both of California.

C-P-P Employees Aid Fund

The Employees Association of Colgate-Palmolive-Peet Co., Jersey City, N. J., recently donated \$325 from its annual boat ride to Rye Beach to the Sister Kenny Foundation.

Cos. Chemists to Meet

The fall meeting of the Society of Cosmetic Chemists will be held Thursday, Dec. 8, at the Savoy Plaza Hotel, New York. Technical papers will be presented at this, the regular

semi-annual meeting of the Society. Dr. S. D. Gershon of the Pepsodent division of Lever Brothers Co., Chicago, is chairman of the program committee.

TOILETRIES SHOW

(From Page 53)

flakes. The gift is a molded animal novelty of castile soap which is being packed in each carton of the flakes. For the private brand buyer he was offering many soap novelties specially designed for exclusive use.

Some of these Hewitt specialties were on view in the exhibit of the House of Tre-Jur, Inc., New York, which has recently introduced clown, cowboy and dog designs as premiums for purchasers of their bubble bath products. Tre-Jur also showed soaps for both adults and juveniles, decorated with decalcomanias. In charge for Tre-Jur were Leon Singer and A. Mossheim, from the New York sales office.

Another exhibitor of a Hewitt-made novelty soap was Parfait Sales, Chicago, which was offering a "Kick off" cake, designed in miniature after the official Spaulding football. Sam S. Grill, sales manager, was in charge.

Allen B. Wrisley Co., Chicago, had a number of new Christmas wrappers for its "Bath Superbe," and also featured a new \$1 set of three cakes of soap in lilac fragrance. Corsage packages in rose and gardenia, bulk soap offers and other items in the line were also shown. In charge were A. R. Kopan, Paul Litkowski and A. R. Sergeant.

Monogram Soap Co., Hollywood, Calif. was on hand with a dis-

play of their soaps, ornamented with Walt Disney characters in color, for juveniles, and with initial monograms for adults. S. Greenblatt, proprietor, said designs are not decalcomanias but produced by a special process, which preserves them intact until the soap has all been dissolved.

The House for Men, Chicago, had a new "His" shaving bowl, a new "gold" line of containers for various shaving preparations, gift sets and other new features of their men's exclusive toiletries products. Charles S. Cameron, in charge.

Ferd Mulhens, Inc., New York, founded in France in 1792, was offering four bars of their white rose glycerine soap for the price of three. Displayed also was a new cuticle molding set, for the manicurist, which went on sale Sept. 15, and there was a large exhibit of the company's full line of colognes, bath soaps and salts, body powders and other cosmetic products, all bearing the historic "4711" brand name, first used in the Napoleonic era. Larry Olson, Chicago district sales manager was in charge.

Bubble bath crystals were featured by Trylon Products, Chicago. Other toiletries houses displayed soaps as elements of sets of toilet goods.

One novelty which attracted much attention was a "Suitcase Full of Soap," designed to resemble a traveling bag, in which are packed 25 guest size soap cakes in wrappers bearing names of well-known hotels, steamship and airlines and de luxe railroad trains. By arrangement with the hotels and travel agencies, the soap, with authentic labels, is obtained from four manufacturers, including Colgate-Palmolive-Peet Co., Procter & Gamble Co., Lever Bros. Co. and the Iowa Soap Co., it was explained by Edwin Goldstein, president of The Weatherman, Chicago, originator of the idea. Sale of this novelty began in department and drug chain stores. It is expected, Mr. Goldstein said, to appeal to travelers who collect soap wrappers as a hobby and should also contribute to the sale of more soap. Principal business of his company, The Weatherman, is the manufacture of weather forecasting devices for popular use.

Cowles CHEMICALS



DRYMET*

THE ECONOMICAL DETERGENT SILICATE

Cowles DRYMET, anhydrous sodium metasilicate, is the most highly concentrated form of sodium metasilicate available. It is more economical to use, on the basis of both Na_2O (alkalinity) and SiO_2 (silicate) than any other type of hydrated or anhydrous detergent silicate, either compounded or by itself. DRYMET contains no water of crystallization.

DRYSEQ*

THE ALL-PURPOSE DETERGENT SILICATE

Cowles DRYSEQ, anhydrous sodium sesquisilicate, is a medium pH alkaline cleaner which will do fast, dependable work at a low cost to the user. It is a white, free-flowing powder, quickly and completely soluble in hot or cold water—containing 56.75% Na_2O —making it an economical base material for compounding.

DRYORTH*

THE HEAVY-DUTY DETERGENT SILICATE

Cowles DRYORTH, anhydrous sodium orthosilicate, is a powerful, speedy, heavy-duty cleaner with valuable penetrating and wetting-out properties, reinforced dirt-removing power and unusual emulsifying action. It is an anhydrous, free-flowing powdered silicate containing not less than 60% Na_2O , which may also be used as an economical constituent of high pH cleaning compounds.

CRYSTAMET*

THE MEDIUM pH DETERGENT SILICATE

Cowles CRYSTAMET is a pure, perfectly white, free-flowing granular pentahydrate sodium metasilicate with the normal 42% water of crystallization. Suggested for compounding when it is desirable to lower the concentration of a finished product. Readily soluble—chemically stable—easy to handle. Can be used on medium pH jobs.

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RAW MATERIAL

MARKETS

As of Oct. 3, 1949

THE fat and oil market experienced a setback during September when the upward price trend that began in July and carried through August ended abruptly last month and fell back to below the early August level. The break in prices was fairly general with tallow down officially $1\frac{3}{8}$ of a cent below the late August quotation of $7\frac{3}{4}$ cents. Coconut oil at $13\frac{1}{2}$ cents is currently two cents under the price of the previous month. Copra prices also are lower at \$160 a ton than they were late in August, when the quotation was \$180. Crude cottonseed oil took a sharp drop from $14\frac{1}{2}$ cents, as of August 29, to $10\frac{1}{4}$ cents currently. Corn oil at $11\frac{3}{4}$ cents a pound is under the late August price by about $3\frac{3}{4}$ cents, a decline almost matched by that of soybean which dropped two and one-half cents in a little over a month. Soybean oil is now quoted at $10\frac{1}{2}$ cents a pound. Peanut oil, crude basis, also reflected the market recession and registered a drop of five cents, going from 19 to the present price listing of 14 cents. Lard is currently bringing $11\frac{3}{4}$ cents a pound.

Fatty acids also felt the effects of the downward tendency in fat and oil prices, cuts ranging from one to one and one-half cents a pound were reported. Red oil was lowered $\frac{3}{4}$ th of a cent and stearic acid was down a cent.

The size of crops indicated for this year could result in a production of fats and oils from domestic materials in the 1949-50 season of 11.2 billion pounds, according to a recent summary by the Department of Commerce. Such a total is 260 million pounds greater than the favorable output indicated for the season now drawing to a close, and the largest in our history. The prospective increase

would be primarily attributable to a greater supply of inedible tallow and grease and lard. The 11.2 billion pound production figure excludes an allowance of 220 million pounds (oil equivalent) for oil seeds that may be available for shipment abroad in the coming season. Total new supplies of fats and oils would be sufficient to provide a consumption rate equal to that of the current crop year and still leave almost one billion pounds for net exports or additions to stocks.

Production of fats and oils in the current crop year has also been one of the most favorable on record and may reach almost 11 billion pounds, only slightly less than the peak achieved in the 1943 season. Domestic consumption of fats in the first nine months of 1949 has been 120 million pounds less than a year earlier, with reduced utilization of inedible tallow and grease, coconut oil and soybean oil. Coconut oil consumption in the first half of the year was 235 million pounds, as compared with 364 million pounds in the first six months of 1948. Stocks were lower, holdings in terms of oil, amounted to 89 million pounds on June 30 as against 127 million pounds on the same date in 1948. Production of inedible tallow and grease from October, 1948 through June, 1949 amounted to 1,600 million pounds, as against 1,565 million pounds a year earlier. Total production for the year is expected to be about two billion pounds, which is somewhat higher than the 1947-48 total. Apparent disappearance domestically for the year is about 135 million pounds below that in the comparable months of 1948. Exports of inedible tallow and grease expanded sharply through the October-June period, totaling 265 million pounds, a figure which is more than five times greater than that for the year before. Although factory and warehouse holdings have declined from

the high of 395 million pounds held at the end of February, inedible tallow and grease stocks on June 30 were 362 million pounds, about 40 million pounds more than the heavy stocks of the previous year.

Copra shipments from the Philippines are considerably lower than they were in 1948. From January to July of this year a total of 284,000 long tons of copra were exported, which is 28 per cent under the figures for the corresponding period of 1948. In the first seven months of 1949, 35,000 long tons of coconut oil were exported from the Philippines, which is about double the amount shipped in the corresponding period of the previous year. However, even with more coconut oil being shipped, the Philippine exports are nearly 20 per cent less this year than they were last year.

With the recent reimposition of the two cent processing tax differential on coconut oil of non-Philippine origin under Section 2470 (a) (2) of the Internal Revenue Code, the additional two cents per pound tax is required to be paid by the processor upon the first domestic processing of coconut oil which did not originate in the Philippines. As it stands now, coconut oil originating in the Philippines carries a three cent processing tax. Coconut oil from other than Philippine sources has a processing tax of five cents, plus a one cent import duty.

A new schedule of prices for soda ash in carload lots was announced early this month by the Columbia Chemical Division of Pittsburgh Plate Glass Co. Bulk soda ash is now \$1 per cwt.; light soda ash in 100-pound paper bags is \$1.25; dense soda ash in bulk is \$1.10 per cwt.; in 100 pound paper bags, it is \$1.35 per cwt. Caustic soda and chlorine prices remain unchanged.

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USDA Awards

In a recent opening for miscellaneous supplies by the U. S. Department of Agriculture, Washington, D. C., A.M.R. Chemical Co., Brooklyn, received the award on an unspecified quantity of DDT bombs with a bid of \$6,400. Baird & McGuire, Inc., Holbrook, Mass., received the award on 100 55-gallon drums of cresylic disinfectant with a bid of \$5,087.50.

P. O. Grit Soap Bids

In a recent opening for miscellaneous supplies by the Post Office Department, Washington, D. C., the following bids were received on 1,500 pounds of grit soap: Hainsworth Supply Co., Philadelphia, 5.7 cents; N. Schneider & Sons, Brooklyn, six cents wrapped and five cents unwrapped; Day & Frick, Philadelphia, 4.95 cents; John T. Stanley Co., New York, 7.5 cents; Pioneer Soap Co., San Francisco, seven cents and Unity Sanitary Supply Co., New York, seven cents.

Misc. Panama Canal Bids

The following bids were received in a recent opening for miscellaneous supplies by the Panama Canal office, Washington, D. C.: soap dispensers, U. S. Sanitary Specialties Corp., Chicago, \$2.75; chip soap—Colgate-Palmolive-Peet Co., Jersey City, N. J., \$21.17 per 180-pound barrel; Kamen Soap Products Co., New York, 8.86 cents; National Milling & Chemical Co., Philadelphia, 9.5 cents; North Coast Chemical & Soap Works, Seattle, \$11.90 per hundred pounds; Pioneer Soap Co., San Francisco, 9.8 cents; Unity Sanitary Supply Co., New York, 15 cents; soap powder—Colgate-Palmolive-Peet Co., Jersey City, N. J., \$3.62 per carton of 60 12½ ounce boxes; Cudahy Packing Co., Chicago, 9.8 cents; Kamen Soap Products Co., New York, 3.94 cents; Spazier Soap & Chemical Co., Santa Monica, Calif., 4.3 cents; Stevens Soap Corp., Brook-

lyn, 3.72 cents and Unity Sanitary Supply Co., New York, 5.5 cents. The low bid on an unspecified quantity of dishwashing compound in a similar opening by the Panama Canal, Washington, D. C., was 7.6 cents, submitted by Stevens Soap Corp., Brooklyn.

P. O. Bronze Cleaner Bids

Bids on 150 gallons of bronze cleaner were received from the following in a recent opening for miscellaneous supplies by the Post Office Department, Washington, D. C.: R. M. Hollingshead Corp., Camden, N. J., \$3.75 and F. W. Boyde Co., Philadelphia, \$1.40.

Award to U. S. Soap Mfg. Co.

In a recent opening for miscellaneous supplies by the Bureau of Federal Supply, Washington, D. C., the award on an unspecified quantity of soap (item 51S-1674-10) went to U. S. Soap Manufacturing Co., Philadelphia, with a bid of 11 cents.

Low Wax Bids

Low bids on an unspecified quantity of wax in a recent opening for miscellaneous supplies by the Philadelphia Aviation Supply Office, Philadelphia, were received from R. G. Industrial Chemical Corp., New York, item 1, 7.45 cents, and Standard Oil Co. of Indiana, Chicago, item 2, 7.9768 cents.

Federal Supply Awards

In a recent opening for miscellaneous supplies by the Bureau of Federal Supply, U. S. Treasury Department, Washington, D. C., the following awards were announced: dishwashing compound, item 51C-1576-15, 10.157 cents, Economics Laboratory, St. Paul, Minn., and item 51C-1578-15, 8.4 cents Boston, and 7.8 cents Washington, D. C., Stevens Soap Corp., Brooklyn.

Polish: Cambridge Chemical Co., Cambridge, Mass., item 51P-1046-

10, 23 cents Chicago and East Point, Ga., 24 cents Denver; 1046-15, 70 cents Fort Worth, Tex., and 74 cents Seattle. Trio Chemical Works, Brooklyn, item 51P-1046-10, 21 cents Boston and 18 cents New York and Washington; 1046-15, 64 cents Washington. Bri-Test, Inc., New York, item 51P-1100, 10.4 cents New York, 11.8 cents Washington, 14.5 cents Chicago; 1105, 44 cents Washington; 1125, 12.8 cents Boston, 12.4 cents Washington, and 13.5 cents Cleveland; 1130, 37.5 cents Washington. Davis Manufacturing Co., San Antonio, Tex., item 51P-1100, 17.75 cents Fort Worth, 19.25 cents Denver, and 21.5 cents Los Angeles; 1105, 57.5 cents San Francisco; 1120, 9.5 cents East Point. J. A. Tumbler Laboratories, Baltimore, item 51P-1125, 14.5 cents Chicago and East Point and 17.5 cents Denver and Seattle. R. M. Hollingshead Corp., Camden, N. J., item 51P-1145, 20 cents Chicago.

Low Bid on GPO Liquid Soap

The low bid on 5,500 gallons of liquid soap in a recent opening for miscellaneous supplies by the Government Printing Office, Washington, D. C., was submitted by Harley Soap Co., Philadelphia. The Harley bid was 29 cents a gallon.

P.O. Furniture Polish Award

Buckingham Wax Co., Long Island City, N. Y., received the award on 1,900 gallons of furniture polish with a bid of 38.9 cents a gallon in a recent opening for miscellaneous supplies by the Post Office Department, Washington, D. C.

Koppers Advances Katz

Appointment of S. J. Katz as assistant manager of the western sales district, operated jointly by the Tar Products and Chemical Divisions of Koppers Co., Pittsburgh, was announced recently. He was formerly assistant manager of the midwest district of Koppers Tar Products Division with offices in Chicago. The district to which he has just been appointed has offices in San Francisco and Los Angeles.

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NEW

TRADE MARKS

THE following trade-marks were published in the September issues of the *Official Gazette* of the United States Patent office in compliance with Section 6 of the Act of February 20, 1905, as amended March 2, 1907. Notice of opposition must be filed within thirty days of publication. As provided by Section 14, fee of ten dollars must accompany each notice of opposition.

Liqua-Shave — This for liquid lathering composition for shaving use. Filed Apr. 22, 1947 by Pullen Pharmaceutical Co., Detroit. Claims use since Feb. 15, 1947.

PPG—This for paste and liquid polishing waxes. Filed May 14, 1947 by Pittsburgh Plate Glass Co., Pittsburgh. Claims use since Apr. 30, 1945.

The following trade-marks are published in compliance with section 13 (a) of the Trade-Mark Act of 1946. Notice of opposition must be filed within 30 days of publication and a fee of \$25 must accompany each notice of opposition.

Shampette—This for shampoo. Filed Mar. 12, 1949 by Shampette, Inc., Philadelphia. Claims use since Jan. 24, 1945.

Lady Like — This for powder, paste and liquid polishing waxes for use on floors. Filed Dec. 23, 1947 by Baltimore Paint & Color Works, Baltimore. Claims use since 1922.

Junior Gre-Solvent — This for preparation for cleansing the skin, kitchen utensils, etc. Filed Sept. 13, 1947 by Utility Co., New York. Claims use since Nov. 7, 1936.

The Quakers of Conshohocken Pa. U.S.A. — This for synthetic organic detergents, soaps and solvent cleaners. Filed Sept. 26, 1947 by Quaker Chemical Products Corp., Conshohocken, Pa. Claims use since May 1, 1928.

Fuller — This for all purpose cleaner. Filed Dec. 5, 1947 by Fuller Brush Co., Hartford, Conn. Claims use since May 29, 1926.

Lightfoot's — This for compounds for cleaning the hands. Filed

Dec. 26, 1947 by Lightfoot Schultz Co., New York. Claims use since June 29, 1922.

Cleanall—This for preparation for cleaning velvet, silk, etc. Filed Dec. 27, 1947 by Whittemore Brothers Corp., Cambridge, Mass. Claims use since February, 1910.

Shuclean—This for preparation for cleaning all kinds of white leather. Filed Dec. 27, 1947 by Whittemore Brothers Corp., Cambridge, Mass. Claims use since February, 1910.

Bostonian Shoe Cream — This for preparation for cleaning and polishing kid and calf leathers. Filed Dec. 27, 1947 by Whittemore Brothers Corp., Cambridge, Mass. Claims use since October, 1911.

Homart — This for porcelain enamel cleaner and powdered hand soap. Filed Feb. 24, 1948 by Sears, Roebuck and Co., Chicago. Claims use since July 15, 1946 as porcelain enamel cleaner and since Jan. 15, 1948 on powdered hand soap.

Grano — This for granulated soap for general household use. Filed Apr. 24, 1948 by Jewel Tea Co., Barrington, Ill. Claims use since Dec. 1, 1931.

Werkrite — This for cleaning compound for general laundry, textile, and similar industrial uses. Filed by M. Werk Co., St. Bernard, O. Claims use since June 15, 1928.

E-Z-Est—This for liquid chemical preparation for the cleaning and polishing of silver and other metals. Filed May 8, 1948 by E-Z-Est Products Co., San Francisco. Claims use since Jan. 8, 1938.

Kleen Floor—This for cleaning compound for floors and other surfaces. Filed May 17, 1948 by S. C. Johnson & Son, Inc., Racine, Wis. Claims use since 1917.

Fraysol 22 — This for liquid cleaning solution especially adapted for removing dirt and grease from around machinery. Filed Aug. 19, 1948 by Cofray Manufacturing Co., Union City, N. J. Claims use since August, 1947.

Fraysolve—This for liquid rinsing solution for cleaning and rinsing dirt and grease from machinery. Filed Aug. 19, 1948 by Cofray Manufactur-

ing Co., Union City, N. J. Claims use since August, 1947.

Avium — This for brushless shave cream. Filed Sept. 18, 1948 by John T. Stanley Co., New York. Claims use since April, 1946.

Brushless Man Shave Cream — This for shaving cream. Filed Sept. 30, 1948 by Man Products, Kansas City, Mo. Claims use since Sept. 5, 1945.

Cipco—This for washing compound for clothes. Filed Oct. 4, 1948 by Commercial and Industrial Products Co., Childs, Pa. Claims use since Aug. 1, 1946.

Green Bird—This for germicidal and fungicidal preparation. Filed Mar. 15, 1948 by Green Bird Ointment Co., Baltimore. Claims use since Feb. 25, 1948.

Sunoco — This for automobile wax in paste form. Filed Sept. 20, 1947 by Sun Oil Co., Philadelphia. Claims use since Apr. 24, 1947.

Burlington — This for floor waxes. Filed Feb. 25, 1948 by Davis Paint Co., Kansas City, Mo. Claims use since Mar. 10, 1927.

Good Year—This for automobile body polish. Filed May 7, 1948 by Goodyear Tire & Rubber Co., Akron, O. Claims use since Sept. 17, 1930.

Foodland—This for toilet soap. Filed Mar. 25, 1948 by Clover Farm Stores Corp., Cleveland, O. Claims use since Jan., 1934.

Vicargem—This for granular, general purpose cleanser. Filed June 9, 1948 by Virginia-Carolina Chemical Corp., Richmond, Va. Claims use since Apr. 13, 1948.

Glas-Met — This for glass cleaner and metal polish. Filed Oct. 11, 1948 by C. B. Dolge Co., Westport, Conn. Claims use since Sept. 1, 1948.

Fluds—This for soap. Filed Oct. 26, 1948 by Colgate-Palmolive-Peet Co., Jersey City, N. J. Claims use since Aug. 11, 1948.

EI-BA-CO—This for household insecticide. Filed Sept. 16, 1947 by Ei-Ba-Co Chemical Co., Columbia, S. C. Claims use since July 11, 1947.

Phoscide—This for insecticides. Filed Feb. 24, 1948 by California Spray-Chemical Corp., Richmond, Calif. Claims use since Jan. 9, 1948.

Hopeton House—This for shampoo. Filed June 3, 1948 by Priscilla Parker, Inc., New York. Claims use since Jan. 2, 1948.

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**Samples
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Gold Chain—This for insecticides. Filed Nov. 12, 1948 by Gold Chain Exterminators, Brooklyn. Claims use since Jan. 1, 1917.

Dazzle—This for stove polish. Filed Oct. 26, 1948 by J. L. Prescott Co., Passaic, N. J. Claims use since July 1, 1894.

FB—This for insecticide. Filed June 18, 1948 by Faesy & Besthoff, Inc., New York. Claims use since May 19, 1948.

Antarox—This for surface active agents. Filed Aug. 3, 1948 by General Aniline & Film Corp., New York. Claims use since Mar. 26, 1948.

Brown Label—This for liquid polish for floors, etc. Filed Aug. 29, 1947 by S. C. Johnson & Son, Inc., Racine, Wis. Claims use since Aug. 25, 1939.

Multi - Clean — This for liquid polishing spirit wax. Filed May 17, 1948 by Multi-Clean Products, Inc., St. Paul. Claims use since May, 1946.

Lamco—This for paste wax for cement floors. Filed Aug. 2, 1948 by Lambert Corp., Houston, Tex. Claims use since Jan. 12, 1947.

Laymon's — This for shaving cream and shaving soap. Filed Nov.

18, 1947 by World's Products Co., Spencer, Ind. Claims use since Jan. 1, 1936 on shaving cream and since Feb. 1, 1942 on shaving soap.

Permatex — This for liquid for cleaning glass. Filed Dec. 31, 1947 by Permatex Co., Brooklyn. Claims use since Sept., 1935.

Triad—This for metal and floor cleaners. Filed Jan. 14, 1948 by Detrex Corp., Detroit, Mich. Claims use since Apr. 3, 1931.

Spotlight—This for oil soap in jelly form. Filed June 3, 1948 by Cudahy Packing Co., Chicago. Claims use since Apr. 6, 1933.

Hy-O-Lan—This for soap. Filed July 23, 1948 by Hysan Products Co., Chicago. Claims use since Sept. 20, 1941.

Y-Pof—This for hand cleaner. Filed Sept. 27, 1948 by Richard L. Walsh, Los Angeles. Claims use since Mar. 15, 1948.

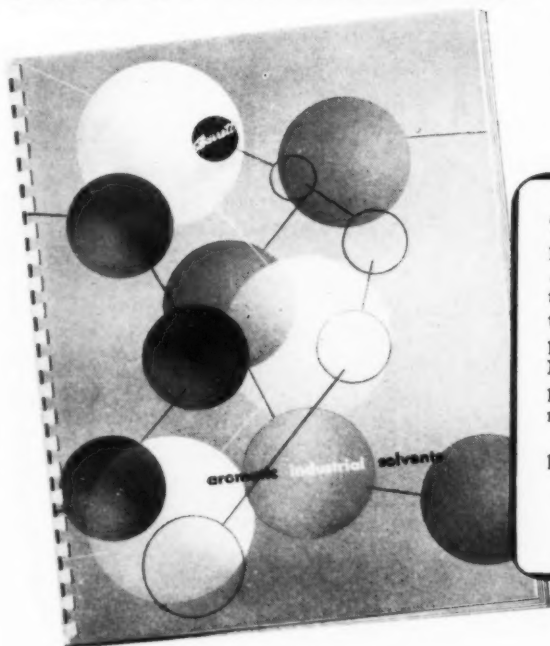
Building With Nonionics

Replacement of 20 per cent of a commercial alkyl aryl sulfonate detergent by the nonionic, "Renex,"

produced an increase in detergency as determined by Launderometer studies, of 30-40 per cent. This phenomenon applies to sulfonated alkyl benzene in which the alkyl group contains 9-16 carbon atoms. Replacement of half the alkyl aryl sulfonate by "Renex" in a built detergent resulted in a larger increase in detergent effectiveness.

When "Renex" was substituted for a portion of sodium laurate, a real but smaller increase in detergency resulted. When built tallow soaps had a portion of the soap replaced with "Renex", they showed an increase in detergency. These experiments were all carried out in 300 p.p.m. hard water, and the findings noted were perhaps to be expected as soap has always been recognized as a poor detergent in water of this degree of hardness. The tallow soap formula showing improvement contained CMC, sodium carbonate, and tetrasodium pyrophosphate as builders. Nonionics therefore give increased effectiveness with other builders. G. E. Barber, *J. Am. Oil Chemists Soc.*, 26, 304-7. 1949.

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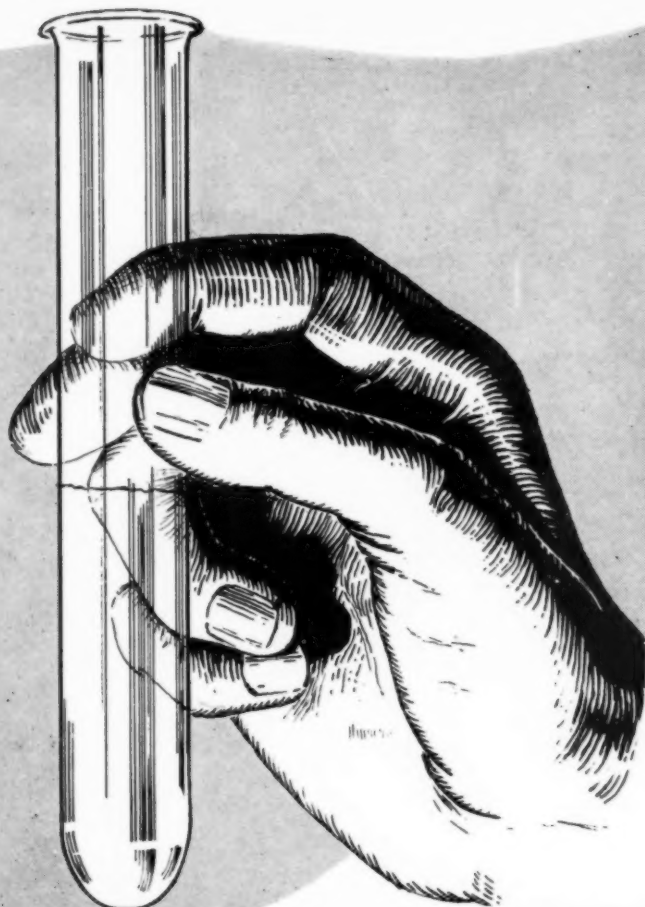
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Cotton Detergent

A synthetic detergent obtained by treating isohexyl phenyl glycol ether with sodium dichloroacetate, has a 30-40 per cent better effect than soap for washing cotton. FD1970/48 (PB 32,949); through *J. Soc. Dyers & Colourists* 65, 74 (1949).

Mechanism of Cleansing

At the concentration used in practical washing, soap forms few single ions, being mostly in the form of large micelles. Because of this, soap has an unusual reserve of washing action, even after some of it has been used up by becoming attached to soil and fabric. The micelles also furnish a protective colloidal action which makes soap an outstanding suspending agent for particles of soil.

Synthetic detergents, on the other hand, do not form the large associated groups of fatty acid and detergent molecules, but are more highly dissociated into ions. They do form small micelles which cause soil to be dispersed in finely divided form. This greatly increases the surface of the

soil, and may permit redeposition of soil on fabric, especially with a prolonged period of washing. When this happens, because synthetics do not have the reserve of washing action exhibited by soap, the redeposited soil cannot be removed. The colloidal properties of "Tylose" resemble those of soap in some respects, which accounts for the improved washing action of synthetics built with "Tylose." Polyphosphates and waterglass are also good builders for synthetics, especially for use in hard water.

Advantages of synthetics are that they permit efficient washing at a lower temperature than with soap, and a shorter washing period. Also the graying is less than when soap is used in water of any except a zero degree of hardness. R. Neu, *Seifen, Ole, Fette, Wachse* 75, 4-8 (1949).

New Detergent

The sodium sulfonate of palmitoyl-ortho-tolylhydrazide mixed with sodium sulfate is useful as a lime-soap emulsifier and solvent, and as a detergent. J. R. Geigy A.-G. Swiss Patent No. 220,926; through *Chem. Abs.*

Detergent for Cotton

N-2-Benzothiazolyl-3-hydroxy-2-naphthamide has unusual detergent action on cotton and other plant fibers. It is a nitrogen-containing surface-active agent. Soc. pour l'ind. chim. a Bale, Swiss Patent No. 230,409; through *Chem. Abs.*

Soap in Grease

Thixotropy or marked change in consistency in lubricating greases is of importance to industry from several points of view. Any explanation of the phenomenon should permit production of more satisfactory commercial products. For example if after packaging, a lubricating grease increases in consistency, a point may be reached where it will not flow to pumping equipment even under suction. On the other hand, a slight softening may aid in lubrication in some cases and if the grease regains part of its body, it will act as a seal and prevent entrance of dirt. Most lubricating greases have a structure which when partially broken down rebuilds itself to some extent.

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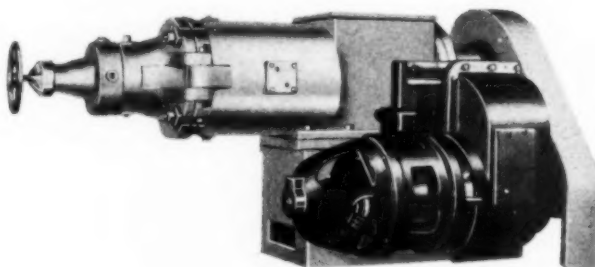
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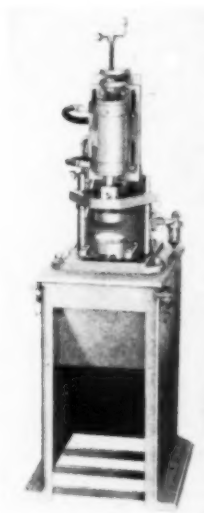
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Synthetics in Water Systems

THE presence of synthetic detergents in water interferes with coagulation in water purification operations according to papers presented at the national

meeting of the American Water Works Association held in Chicago recently. In the water purification symposium, John T. Cross, South District Filtration Plant, Chicago, and William U. Gallaher, Water Department, Appleton, Wisconsin, presented reports on the effect of synthetic detergents on coagulation.

Mr. Gallaher attributed difficulties in coagulation of water during the lime softening process, and peculiarities in tests of the water at the Fox River Plant in Wisconsin to the detergent content of the water. Since the analysis of the detergents in the water was impossible at the low concentrations present in the river, estimates were made on the basis of the per capita consumption of detergent and disposal into sewage. On this basis, the concentration of detergents was calculated to range from the .25 ppm to three ppm depending on the water level of the river. These figures do not take into account many factors which would affect the final concentration, such as natural evaporation.

The report by Gallaher indicated that since synthetic detergents have surface tension reducing properties, when present in amounts of one ppm and higher, they will probably affect coagulation. Qualitative

Studies show the presence of synthetic detergents in municipal water supply systems has a marked effect upon coagulation during lime softening process

tests demonstrating this effect consisted of adding "Surf" to distilled water in concentrations varying from zero to five ppm and observing the time required for the bubbles to break the surface. One ppm was found to have a marked effect on the toughness of the bubble and this effect increased with the concentration of detergent, indicating that only a small amount of detergent will interfere with coagulation and settling, especially if the water contains a small amount of organic matter and requires a coagulant.

The paper by J. T. Cross presented a more complete report on the effect of detergents on coagulation. Six detergents, three domestic and three industrial types, were investigated with respect to the effect of various concentrations of detergents on coagulation and the reaction on addition of lime, various coagulants, and lime plus the coagulants. Only the effects on coagulation were considered; counter measures of the problem will be considered in a later investigation.

Data were presented for tests which were conducted on solutions of five ppm since "In the majority of cases where interference with coagulation was witnessed by the author, the interference did not come about until a concentration of five ppm was reached."

The preparation of stock solu-

tions of the detergents and methods of testing are described. Tabular data are presented on the effect of adding the following coagulants to

each of the detergenated waters: lime, alum, alum and lime, alum-silicate, alum-silicate and lime, ferric sulfate with and without lime, and chlorinated copperas with and without lime.

Addition of the coagulants to the detergenated water produced different results with the various detergents. The general effect was the same, however the degree of interference with coagulation varied with the detergent and coagulant used.

Alum gave poor coagulation with five of the six detergents. The addition of lime to the alum increased the pH, and decreased interference with coagulation. Ferric sulfate, as a coagulant, gave results similar to those of alum. Without lime, two of the detergents showed pronounced interference with coagulation, which was minimized on adding lime. All detergents showed colloidal suspension and poor settling with the chlorinated copperas as coagulants; interference was only moderate upon addition of lime.

The effect of synthetic detergents on coagulation was summarized by Mr. Cross as follows: 1) The addition of lime gives a marked improvement in the coagulation of the detergenated raw water with all the coagulants used. 2) The domestic detergents gave considerably more interference than

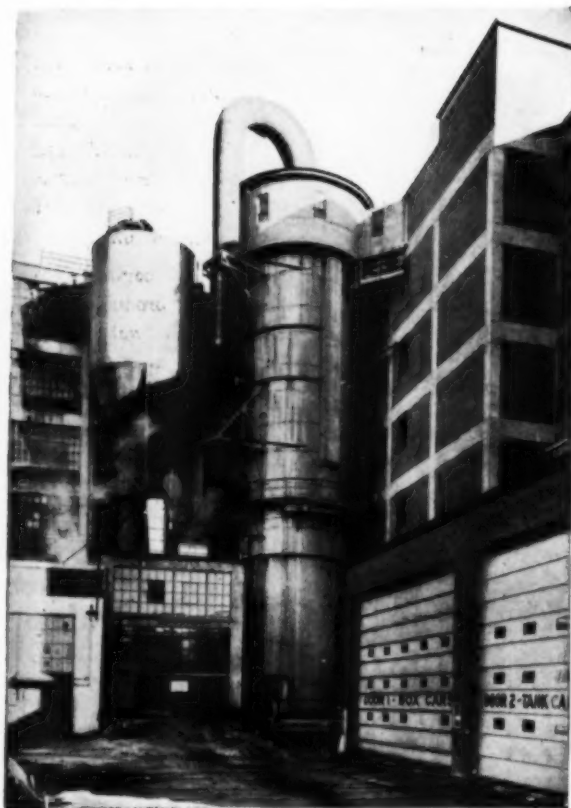
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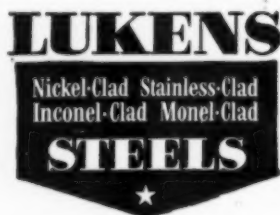
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the industrial detergents. 3) In the tests without the addition of lime,

alum-silicate gave the best coagulation.

Methods of Fat Splitting

THE counter-current splitting of fat of different grades by the Twitchell process was studied. The initial reaction mixture consisted of fat, water, sulfuric acid, and one per cent of sulfonaphthenic-acid emulsifying agent. This is heated by open steam. After separation of the emulsion into two phases, the water is drawn off, fresh water and sulfuric acid are added to the oil and heating is resumed. The sweet water is separated and the oil is boiled with fresh water to remove mineral acid.

Equilibrium Reaction

FOR any given free fatty-acid content of the mixture there is only one concentration of glycerol solution in equilibrium with it; therefore the attainable per cent of free fatty acid depends only on the initial per cent of free fatty acid and on the proportion of water. The reaction is monomolecular and the reaction rate is proportional to the concentration of neutral fat in the oil.

Data for the equilibrium and its constant were ascertained experimentally. The results were applied to splitting in stages and the ratio of water to fat was fixed to give good efficiency at each stage. When the splitting is done in minimum time, the water to fat ratio varies with each successive boil, but the time is not unduly long when an equal ratio is used on each occasion.

Re-use of sweet water from one boil in an earlier boil of the next batch was described. The presence of mono- and di-glycerides made necessary some experimental work. It was found that the glycerine transferred from the fat to the aqueous layer varied linearly with the proportion of neutral fat in the fat phase. That is, the relative proportions of mono-, di-, and tri-glycerides and glycerine in the fat phase remained substantially constant and independent of the degree of splitting.

An equilibrium equation was

derived and applied to the splitting in stages. In actual practice, the water from the third boil was re-used in the first stage of splitting.

Continuous Splitting

FOR continuous splitting, it is possible to arrange a series of reactors, —the batch from each reactor being allowed to settle and the separated water and fat passing to the next vessel in the series, water and fat passing counter-current to one another. Equations were derived for the time and rate of splitting and for the capacity of the splitting vessels.

The splitting rate for continuous splitting was compared with the three-stage system. It was found that continuous splitting could not attain the through-put of the three-stage system except by increasing either the proportion of water or the quantity of material in process. C. B. Cox, *Chem. Age* 60, 718 (1949).

Detergent Micelles

X-ray evidence indicates that micelles of sodium dodecyl sulfate which contain from a third to half as many molecules of a moderately long-chain alcohol (six to 10 carbon atoms), are not increased in diameter above that of the micelle of detergent alone. In some instances the diameter is decreased. This is just the opposite of the effect produced by the solubilization of a hydrocarbon. Wm. D. Harkins and Rose Mittelman, *J. Colloid Science* 4, 367-81 (1949).

Study of Suspending Power

Detergency was studied in terms of the ability of the non-ionic agent, "Triton N-100," to prevent the deposition of carbon black on white cotton fabric. Squares of cotton sheeting were placed in pint bottles containing 100 ml. of carbon suspension in the presence or absence of detergent, and the mixture was shaken for 1 minute. The cotton was

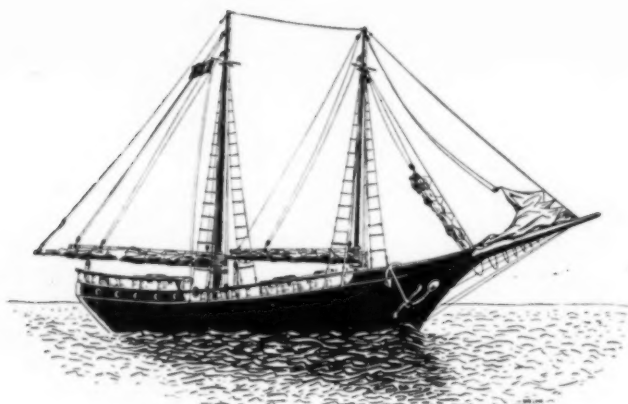
then removed, rinsed, ironed, and its reflectance noted.

A critical concentration of detergent was found above which the cloth was recovered nearly white, and below which it was nearly black. This critical concentration depended on the amount of carbon present. When this critical concentration of detergent was plotted against the amount of carbon, a linear relationship was observed and the intercept of the line was exactly zero. This suggests that the interaction between the carbon and the detergent was stoichiometric and might be dealt with by the usual chemical methods. It is suggested that addition of builders to detergent solutions may result primarily in the alteration of the soil and fabric rather than in change in the properties of the solution itself. Removal of dirt and prevention of deposition appear to be somewhat closely related. I. J. Gruntfest and E. M. Young, *J. Am. Oil Chemists' Soc.* 26, 236-8 (1949).

Superfating Agents

Good superfating agents for soap must be neutral, must not react with alkali, must be unchanged by air and water, must make the soap feel smooth and have an emollient effect on the skin. The most important such product is lanolin, which possesses all of the properties mentioned. However, its price is high and it is not always free from an odor of its own. Not more than five per cent can be introduced into soap without detracting from the lathering property.

Small amounts of mineral oil products have also been used, as well as fatty-acid esters which do not turn rancid. In the latter group are diethylene glycol ricinoleate and diethylene glycol stearate. These do not have an adverse effect on foaming power. Another product is the borax solution of emulsified beeswax. Other superfating agents are lecithin and fatty alcohols of at least 16 carbon atoms such as cetyl alcohol. Casein in combination with sodium thiosulphate offers protection against rancidity development. H. Zilske, *Seifen, Ole, Fette, Wachse* 75, 173-6 (1949).



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Modern Soap Making Processes

MODERN soapmaking processes which represent fundamental developments in the application of science and technology, include the following, some of which are in full-scale use commercially:

(1) The Eisenlohr process of fat-splitting by water alone, without a catalyst, with separation of glycerine and fatty acids by evaporation and condensation.

(2) The du Pont process, in which the methyl ester of fatty acids is first formed by the action of methyl alcohol on fat and later hydrolysed with caustic soda.

(3) The Clayton process, in which fat is saponified continuously with caustic soda at 250°F. at about 250 p.s.i.

(4) The Sharples process of continuous saponification, notable chiefly for the employment of centrifuges in the separation of the spent lye

from liquid soap. There are other important advantages in control, economy, and preservation of consistent quality.

(5) The Colgate-Emery process, a high pressure operation, which like the Victor Mills method, is notable chiefly for a hydrolysis of more than 98 per cent in less than two hours with counter-current extraction of glycerine.

The common objective of the above methods is the manufacture of a uniform product at minimum cost by applying close, scientific controls together with improved chemical and physical operations. The methods are designed also to speed up the process of soap-making and substitute mechanical control for the special skill of the operator, on which kettle saponification so often depends. J. Seaman, *Soap, Perfumery, Cosmetics* 22, 698-702 (1949).

Lecithin in Soaps

Vegetable lecithin is usually extracted from soybean oil and retains about 40 per cent of the oil. On milling five per cent of lecithin into soap, two per cent of unsaponified soybean oil is also introduced automatically. Steps have been taken to eliminate the oil content and to replace it by stable fatty substances. The substitution of the latter is necessary because pure lecithin does not keep well and is difficult to work. The following combinations have been developed:

- 25% lecithin plus 75% glyceryl monostearate—hard and brittle
- 75% lecithin plus 25% glyceryl monostearate—fairly hard
- 60% lecithin plus 40% petroleum jelly
- 40% lecithin plus 60% lanolin
- 25% lecithin plus 25% wool wax and 50% lanolin

Soaps with which such lecithin preparations were incorporated by milling were characterized by special properties. The soap mass remained firm; an unduly brittle soap became supple; the lather was creamier; durability was unaffected or improved. Cakes or bars remained unchanged even after 10 years, during which the perfume was unimpaired. They had a pleasant action on the skin, especially

when lecithin-lanolin was present. A soap base of particular suitability was prepared from 85 per cent tallow, 12 per cent coconut oil, and three per cent castor oil, by saponification with caustic soda.

Lecithin cannot be used in soaps for which a perfectly white color is desired, since slight yellowing occurs with additions of only 0.5-2 per cent, while a yellow to brown color is imparted by 5-10 per cent concentrations of lecithin. Additions of up to five per cent strengthen the lather.

Manufacturing Chemist 20, 402-3 (1949).

Cause of Fat Spoilage

Fats from different animals were exposed for 2-3 years to diffuse daylight and the progress of oxidation was checked every 3 months. The peroxide is formed by adding 1 molecule of oxygen to the unsaturated linkage of the olefinic acid. The double bond

which is farthest from the carbonyl is attacked first. Thus, it was found during the experimental period that while only 15 per cent of oleic (9,10-octadecenoic) acid, 30 per cent of 11,12-octadecenoic acid was oxidized.

Decomposition products of aldehydic character, such as epihydrin aldehyde, and free aldehydes such as enanthaldehyde are considered as the carriers of organoleptic rancidity. Degradation of the oxidized fat is accompanied by a polymerization which becomes obvious by the formation of a film layer on the surface of oils after extended storage. E. Iselin, *Mitt. Gebiete Lebensm. Hyg.* 39, 310-36; through *Chem. Abs.*

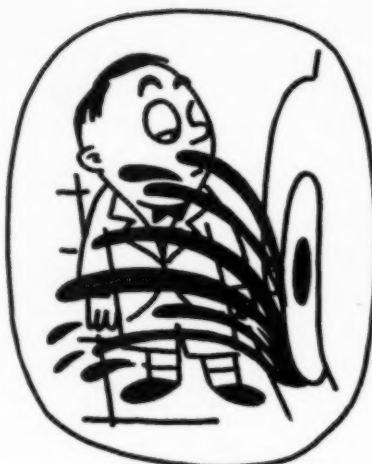
Stilbene in Textile Aids

Water-soluble surface-active agents are obtained by the reaction of stilbene derivatives containing one to several 1,3,5-triazine rings with at least one free amino group and solubilizing groups such as sulfonic or carboxylic acid groups, with formaldehyde or formaldehyde-forming compounds in neutral or alkaline solution. J. R. Geigy A.-G. Swiss Patent No. 237,394.

Evaluating Wetting Agents

Of the four methods broadly representative for evaluating wetting agents, two are based on cotton yarn and two on cotton fabric. These methods are: the official or Draves method, the canvas-disk method, the yarn-bundle method, and the canvas-square method. Normally, the test which gives a sinking time near 25-seconds for the particular solution being studied, should be selected. In comparing wetting agents which differ chemically, two different tests should be used. It is suggested that log-log plots be made of the results by both methods, and that comparisons be made of the concentrations required to give sinking times of 50 seconds, 25 seconds, and 10 seconds in both tests.

However, for the final evaluation, the wetting agents should be compared under the particular practical conditions of use. S. M. Edelstein and C. Z. Draves, *Am. Dyestuff Reporter* 38, P343-7 (1949).



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Wyandotte Carbose, when incorporated in soaps and synthetic detergents, improves not only soil removal but also whiteness retention. In effect, it suspends the soil it removes . . . keeps that soil from redepositing.

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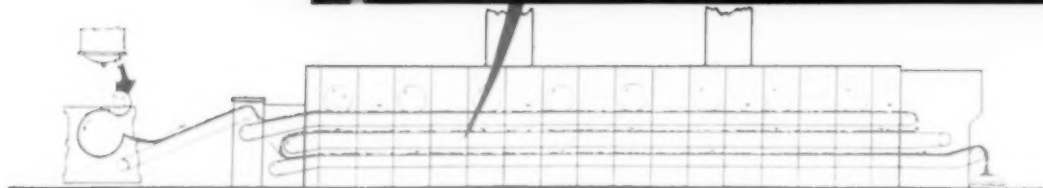
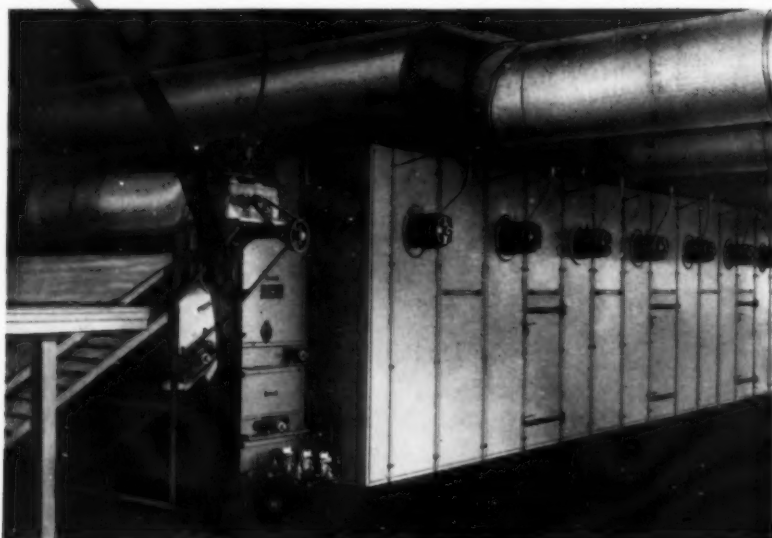
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By E. G. THOMSEN, Ph.D.

HOW to persuade employees to arrive at work on time and not leave early is a constant problem which sometimes is a sensitive one. The problem is the more difficult because the people who insist upon others putting in their full time, on occasion are the most flagrant offenders in working shorter hours. This subject is a ticklish one not only with plant employees but also with workers in offices and other departments. Many plans have been put forth to combat waste of work time. Some of these have aggravated the situation rather than improving it. Anyone writing on this subject is quite sure to be prejudiced one way or another for all of us have cheated or tried to cheat on working hours. It is a common characteristic to forego business for pleasure.

It need hardly be said that time clocks are the most common means of recording factory working hours. Most factory people are so used to punching the time clock that they take this duty as a matter of fact. It is not uncommon, however, to find certain employees taking delight in "beating" the time clock. This they do in various ways. The most common probably is to be in cahoots with other employees whereby one person will punch several cards at the proper time. On some time clocks it is possible to adjust the time record with a hand lever so as to record overtime. We have seen cases where this device has been used to the advantage of a tardy employee to register overtime dishonestly to compensate for lateness. Most up-to-date time clocks are designed to prevent any false records.

Where many employees ring up the clocks, however, it is economical to delegate someone to watch the clock during rush periods. His duties are not only to see to it that the clock is properly punched but to observe the men and women entering and leaving

to ascertain if they are carrying goods out of the plant. In plants where permits are needed to take out packages, he also may collect these. If employees



DR. THOMSEN

know they are being watched, less petty thieving occurs in time and materials. In some plants such a watchman is stationed at the time clock stations fifteen minutes before and after starting and quitting times. This much leeway is permitted. Then the time clocks are locked and employees who are too late lose an entire half day unless they have a very good reason for tardiness. This procedure gets the chronic offenders. Most factory employees are prompt in their working hours.

Another method of recording employees' working time is through a check-in and check-out by a time clerk. This method, employed extensively before time clocks came into widespread use has the advantage of keeping a personal check on the activities of employees and tends to discourage their leaving the plant without permission during working hours.

Another time-keeping system may be termed the honor system. This is more adaptable to employees in higher ranking jobs who object to standing in line with factory men and

women to punch the clock. Such people may, of course, be checked in by a time clerk, or another means may be resorted to. Each employee is given a time card or time sheet which he keeps on his desk or person. On this card he enters the time of arriving and leaving work. The implication is that this record truly represents the time he has worked. We have seen this system work very satisfactorily.

Employees of lower rank are not the only ones who report to work late. Those in executive positions more often are the worst offenders. It is common parlance among factory employees to remark the boss is late or quits early, as usual. While this is his privilege, it is not a good idea. Most successful plant executives realize this and keep regular, prompt hours. As a matter of fact, they put in more than regulation time. If overtime is worked, it is good policy to let the employees know of it, for greater respect is thus obtained for proper, plant time discipline.

We were employed at one time where executives were wont to cut short their working hours. It was a rather difficult situation to cope with, even though only a certain few were the worst offenders. The president of the company who was very punctual himself hit on a novel check-up plan. At irregular, unexpected intervals he called conferences five minutes after starting time instead of at mid-morning or in the afternoon. These conferences had to do with important business details. If the department head were not present when matters under his charge were discussed, it was to his disadvantage. In addition, he did not know what was transpiring during his absence. Then, too, if he walked into the conference late he was extremely self-conscious. The results of this procedure were excellent as the executives arrived promptly after its inauguration.

Loss of time means loss of money, especially at today's high wage scales. The means of correcting it are constructive and profitable. It is important not only to use methods such as just outlined but to put forth ef-

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forts to instill so much interest of employees of all types in their work that they have the urge to do more work in a day rather than trying to slight their labors.

Compact Mixer

THE "Blue Streak" twin spiral mixer made by Prater Pulverizer Company, Chicago, is said to do more mixing in much less floor space than conventional equipment. A cone-shaped, vertical type mixer, it features one floor level loading and discharge. Two-speed, twin spirals give accurate, fast blending of dry materials. Mixing costs are low through the use of this sturdily built mixer which handles heavy or light loads.

Methocel Booklet

DOW CHEMICAL CO., of Midland, Mich., offers a mimeographed booklet on their new product "Methocel" that is of interest to the soap and other industries. This work outlines in detail, yet tersely, the properties and applications of "Methocel" as well as other information like its toxicological effects. In certain cases, formulations are suggested. This booklet should be a welcome addition to many chemical libraries.

Soap Mill Improvement

VICKERS-ARMSTRONG, LTD., London, England, claim a simple device of their manufacture increases the daily output of their large toilet soap mill by five per cent per day. This device consists of an inter-connected scraper mechanism. By the touch of an actuating lever from the front or rear of the mill, both scrapers respond simultaneously. This simplifies the operation, preserves the operator's hands and saves considerable time between millings.

Liquid Soap Additive

EMCOL 5100," made by the Emulsol Corp., Chicago, is used as an additive for liquid soaps and shampoos to increase their cleaning and foaming, even in soft water. For use in hard water, "Emcol 5100" increases the cleaning and foaming properties decidedly. It also disperses the curd or scum that often deposits as an unsightly hard water film. When five

to 10 per cent is used in liquid soap, the soap is thickened considerably in consistency. This uniform and economical alkanolamine condensate is also used as a soapless liquid detergent.

Antiseptic Floor Dressing

FOR several years, one has heard references to a floor dressing with germicidal properties to kill bacteria on floors. A favorite suggestion has been to make a disinfecting floor wax. The difficulty has been that such a preparation has germicidal properties only when it is wet and applied to the floor. These are very questionable when the product dries out.

Recently, Fuld Bros., Baltimore, announced their "Trol-Dus" as an antiseptic floor dressing for effectively controlling floor dust and the bacteria and dust-borne viruses contained therein. This product, it is claimed, is made by the addition of a special bacteriostatic agent that aids to control organisms that settle and multiply on the floor. Samples, literature and further information regarding "Trol-Dus" may be had by writing to the company.

Phosphate Nomenclature

ON SEVERAL occasions recently, we have been queried regarding the methods by which phosphates are named. Their use in the soap and detergent industries has increased greatly in the past decade not only in volume but also in variety or to be more exact, in the various kinds of sodium and potassium phosphates. Not so long ago, trisodium phosphate was about the only alkaline phosphate detergent one heard very much about. Now we read continuously about pyrophosphates, trimetaphosphates, polyphosphates, metaphosphates, hexametaphosphates and phosphate glasses. Even a chemist has difficulty in differentiating the many kinds of phosphates. Eight years ago, he thought there were but three metaphosphates. Now the polarizing microscope identifies at least six metaphosphates.

For those who have some knowledge of chemistry and wish to familiarize themselves more fully about the peculiarities of phosphates, may we refer them to Page 214 of the January 24th, 1949 *Chemical & Engineer-*

ing News where an enlightening article appears on phosphates by E. P. Partridge. To gain further information as to the names of the complex phosphate anions, refer to the December 20, 1945, "Subject Index of Chemical Abstracts" pages 5867 to 5975 and pages 5959 to 5960.

There is some agitation for simplifying the nomenclature for the phosphates. This will come in time.

Optical Bleach

INQUIRIES have come in as to why certain soap products whiten clothes. This is obtained by the use of blue fluorescent dyes which are used as whitening agents. The Chemical Division of Koppers Company, Pittsburgh, Pa., has a bulletin (C-9-111) for free distribution that gives a description of beta-methyl umbelliferone (BMU) widely used for this purpose.

Newport Rosin Color Card

A color card of rosin samples currently is being distributed by Newport Industries, Inc., New York. The colors represented on the card are made of glass and are modeled after the official U. S. Department of Agriculture method of grading rosin. The fast colors used have been combined to approximate the Government standard. Although every care has been used to match the standard color grades of rosin with the material available, and it is believed that close approximations have been achieved, the company stresses that the cards are not to be used for the grading and checking of American rosins. The cards may be obtained from the company or its representatives.

Issues Heat Sealing Data

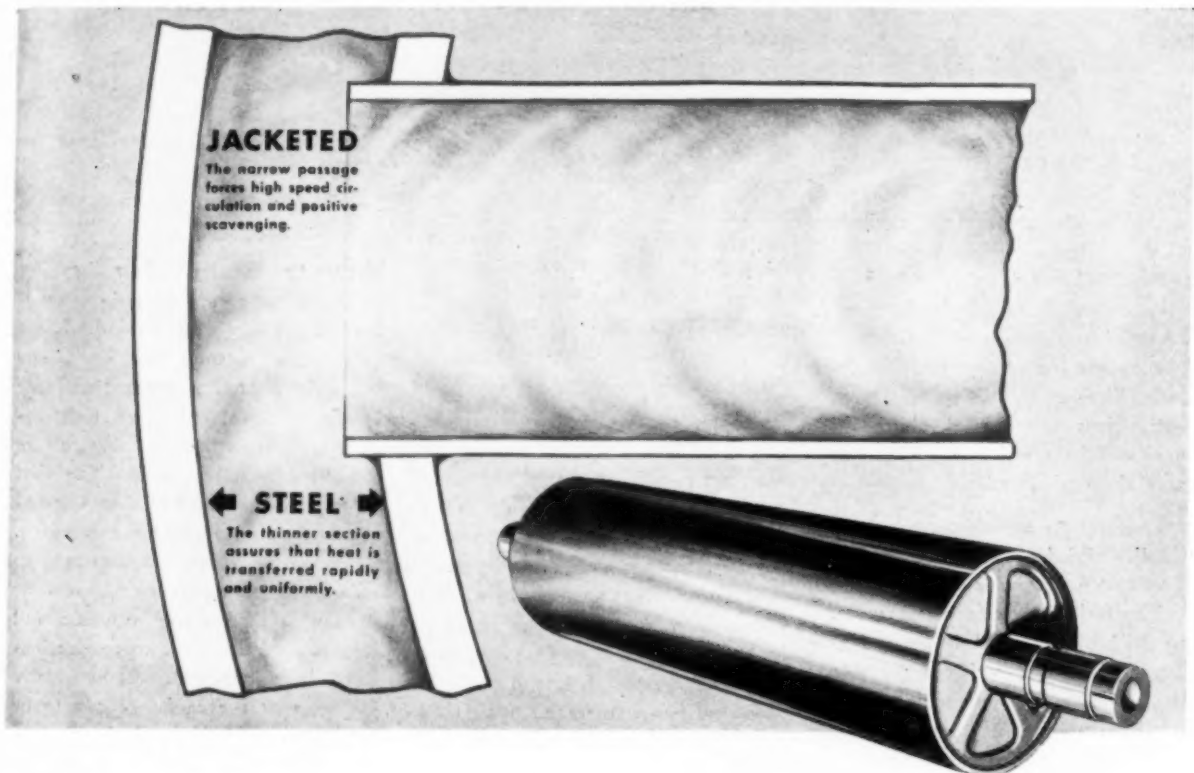
High temperature swivel and rotating joints with metallic seals are described in two bulletins recently issued by the Chiksan Co., Brea, Calif. The swivel joints are made in eight styles which permit 360° turns in one, two, and three planes and are built to operate at temperatures to 600° F. and maximum working pressure of 300 psi. They are available in 3/4", 1", 1 1/4", 1 1/2" and 2" sizes with either threaded or flanged ends. The

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rotating joints are designed for maximum working pressure of 150 lbs. steam at rotating speeds of from 150 to 300 RPM. Seals have hard chrome plating and cadmium plating inside for rust and corrosion resistance.

Announces New Colorimeter

A new type of filter colorimeter representing a departure from pre-calibrated or visual colorimeters has been announced by E. Machlett & Son, New York. Named the Coleman Filter Photo-Electric Colorimeter, the device has a scale panel calibrated in both transmission and density. Specially selected filters cover the visible spectrum in six uniform increments of spectral purity. A photocell operating at low sensitivity insures linearity, freedom from cell fatigue and accompanying drift, the company claims.

Describes Soybean Oil Plant

Extraction of soybean oil by trichloroethylene is described and illustrated in Iowa State College Bulletin No. 165 published by the Iowa Engineering Experiment Station, Ames, Iowa. The 90-page bulletin covers design and operating technique for a soybean oil plant of ten to twenty tons per day capacity.

Diamond Silicates Booklet

A new 20-page booklet reviewing silicate of soda products has been issued by Diamond Alkali Co., Cleveland. The booklet describes ten standard grades of the company's liquid silicates of soda and presents principal physical properties, major industrial applications, basic advantages, and size and net weights of each grade.

Other products included in the booklet are three grades of granular silicate of soda for use in cleaning compounds, textile mills, paper mills, and as detergents in laundries, dairies, bakeries, and other food canning and packing plants, as well as for sanitation and maintenance in restaurants, hotels and institutions.

Comparison tables covering specific gravity, temperature correction and fahrenheit-centigrade conversion charts are also included.

Develop New Titer Tester

A new titer testing device for testing commercial fats and oils in accordance with A.O.C.S. Official Method Cc 12-41, has been developed by Precision Scientific Co., Chicago, in cooperation with Emery Industries, Inc., Cincinnati. The apparatus is applicable for determining the titer of commercial oleic acid, animal and vegetable fats and oils and marine oils titrating from about $-5^{\circ}\text{C}.$ to $45^{\circ}\text{C}.$

By using a cooling jar in place of the titer tube the cooling bath of the Titer Test apparatus may be used for determining ASTM cloud and pour points on such materials as lard oil. It is also useful in determining cloud points on oils and fatty acids as an indication of their moisture content.

Three samples may be tested simultaneously, since the 100 rpm stirrer has a stirring rod at each test tube aperture. The apparatus is equipped with a mechanical refrigerator and an immersion heater. Temperatures in insulated bath are thermostatically controlled from $-20^{\circ}\text{F}.$ to room temperature. Clear vision through

samples is provided by a light behind the observation window.

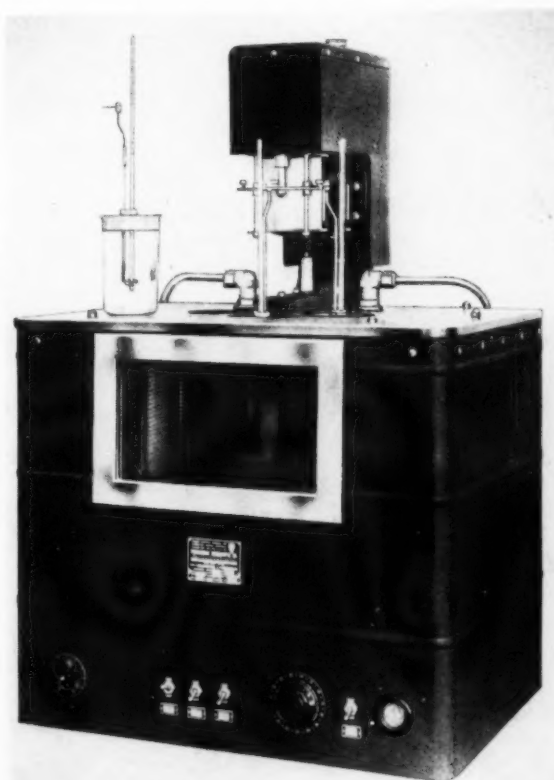
New Day Filter Housing

The Day Co., Minneapolis, currently is manufacturing a filter housing for its "Autoclean" dust filter. Designed to meet the needs of plants where dust filters must be installed outdoors or where the filters are on vacuum installations, the housing is constructed of curved steel panels. Quick opening clamps facilitate erection and permit quick removal of sections for easy access to the filter.

New Koppers Compound

Development by Koppers Co., Pittsburgh, of a new coal-tar sealing compound which is expected to lengthen the life of railroad cross ties and other wood products was announced late last month by M. G. Sturrock and R. H. Beacher, managers of the tar products technical section and wood preserving technical department, respectively. The compound, known as No. 16, applied at air temperature, adheres to creosoted ties and flows into checks and splits.

The new titer testing device for testing commercial grades of fats and oils in accordance with the American Oil Chemists' Society's official method. The equipment was developed by Precision Scientific Co., Chicago, in cooperation with Emery Industries, Inc., Cincinnati.



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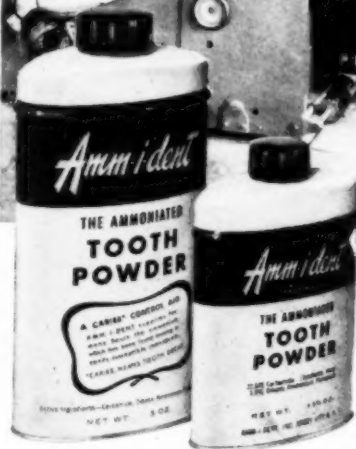
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Analyses of representative commercial British car polishes are as follows:

1	oz
Light mineral oil	60
Oleic acid soap	5
Wax	5
Water	30
2	oz
Clay-type abrasive	5
Mineral oil	20
Emulsifying agent	10
Water	65

The first product is used widely for application to worn car finishes. The lack of abrasive and high mineral-oil content facilitate easy application, impart a good although impermanent gloss, provide maximum lubrication and protection against air and moisture. In the second product, the emulsifying agent is believed to be a petroleum sulfonate; it gives a stable suspension. G. V. James and J. M. Vallance, *Soap, Perfumery, Cosmetics* 22, 865-6 (1949).

Sampling Tank Cars

The general problem of taking a representative sample from a tank car of crude vegetable oil containing foots is discussed, and a new method of sampling designed to overcome the shortcomings of present day methods, is presented. E. Freyer, *J. Am. Oil Chemists' Soc.* 26, 408-13 (1949).

Kaolin Coated with Soap

From seven to 30 per cent of soap is ground in a ball mill with kaolin or fuller's earth to give a powerful detergent. The soap forms a thin coating layer on the clay particles. Water may be added to the soap before it is mixed with the kaolin. L. J. M. Longchambon and J. F. Longchambon, French Patents 871,352 and 871,353.

Cleaning, Polishing Agent

A cleaning and polishing agent comprises one gallon of a petroleum product having a minimum flash point of 105°F., 2 pounds of precipitated

chalk, 2-4 ounces of methyl hydrate, 2-4 ounces of ammonia, 4 ounces of soap flakes, 2 ounces of pine oil, and 16 ounces of water. J. H. Fisher, Canadian Patent No. 455,802.

Soybean Oil Composition

Twenty samples of soybeans were analyzed and found to contain 17.4-22.9 per cent of oil on a dry basis. The fatty acid composition varied considerably, with six to 8.5 per cent of linolenic acid and 0.01-0.09 per cent of arachidonic acid. O. H. Alderks, *J. Am. Oil Chemists' Soc.* 26, 126-32 (1949).

Silver Polish Solution

Silver and its alloys, nickel, brass, and other metals, may be polished by placing the ware in contact with aluminum in a hot two per cent solution of sodium carbonate 76 parts, boric acid 17 parts, and powdered soap seven parts for five minutes. *Societa a R. L. Galvana, Ital.* Patent No. 420,381; through *Chem. Abs.*

Textile Agent

p-Stearoyl amino benzohydrazide is treated with glucose in the presence of glacial acetic acid or alcohol at 60-80°C. to form a brownish mass, easily powdered and soluble in a little alcohol. On dilution with water this forms an opalescent, foaming solution useful for treating textiles. Soc. pour l'ind. chim. a Bale. Swiss Patent No. 230,842.

Sorption at An Interface

The absorption of a water-soluble surface-active agent at solution-air interface has been measured by use of the *sonit beta* radiation from the radioactive isotope of sulfur, S³⁵.

The method was used to show the concentration of molecules of "Aerosol OTN" at the surface of the solution in much higher proportions than those of sodium sulfate. The method seems to generally applicable

to study of surface phenomena involving adsorbed layers. For example, by using labelled sulfate, adsorption of sulfate ions in the surface layer in a solution containing both cetyl pyridinium chloride and sodium sulfate, has been measured. Systems containing several surface-active agents can be investigated by this means. J. K. Dixon, A. J. Weith, A. A. Argyle, and D. J. Salby, *Nature* 163, 845 (1949).

Bleaching Preparations

Diluted bleach solutions find a steady market in the household field. Such fluids may be made by diluting ready-prepared, concentrated sodium hypochlorite solutions, which are obtained from the large manufacturers of industrial alkalis:

Parts	
Sodium hypochlorite solution, 14-15%	100

Water softener, sufficient to give 5% weight/volume of available chlorine. Small proportions of sodium carbonate, silicate, and phosphate may be added. German products of this type contain five per cent sodium alkyl sulfate and a fairly high proportion of sodium silicate. The label on the bottle, besides suggesting uses and cautioning against certain uses, should emphasize the importance of proper dilution.

Bleaching powders contain various oxidizing agents:

1.	Parts
Sodium sesquisilicate	70
Trisodium phosphate	15
Sodium perborate	15
2.	Parts
Sodium silicate, powdered	50
Sodium hypochlorite solution, 12% chlorine	15
Trisodium phosphate, 11 H ₂ O	18
Sodium alkyl sulfate powder	7
Tetrasodium pyrophosphate anhydrous	10

The ingredients in the first formula are mixed thoroughly and packed dry in well sealed cans.

The phosphates are first charged into the mixer, followed by the hypochlorite solution. When the water has been taken up, the remaining constituents are incorporated. H. Streatfield, *Soap, Perfumery, Cosmetics* 22, 585-6 (1949).

EXQUISITE FLORALS FOR SOAPS

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By John W. McCutcheon

SYNTHETIC detergents and surface active agents continue to play an important part in the news. Recently at the Chicago meeting of the American Water Works Association, the increasing difficulty with settling at sewage disposal plants was discussed.* This condition was worse at the beginning of the week than at the end, leading to the conclusion that the high percentage of synthetic detergents present in the sewage water following Monday wash day, was responsible for "gumming up the works." So far, no one has been sued, and the sanitation engineers are having trouble proving their point. Apparently they are not decided how to test the presence of a culprit giving trouble when present to the extent of five ounces per tank car of sewage.

The problem points up an important fact in regard to the use of the newer surface active compounds, namely, their stability. Often this is cited as the greatest benefit to mankind. Actually, many operations require that the detergent quietly decompose itself after it has accomplished its purpose. Soap can do this in two ways: under mild acid conditions, or by the evaporation of the base such as occurs with morpholine and other amine soaps used in floor waxes, etc. Synthetics generally do not lend themselves to such mild decomposition, but on occasion they, too, can fade out of the picture. Cases in point include the oxidation of the hydrophobic chain, as in the pentaerythritol esters of castor and tung oil fatty acids, or phase inversion such as occurs when the water evaporates from certain insecticidal preparations. Doubtless the reader can think of others.

Color of oils is important to soap-makers who are anxious to main-

tain uniform quality of product or who specialize in high grade toilet soaps.

In such cases it is essential to



bleach the oil or tallow before use. The kettle cannot be counted on to do this. For many years the Lovibond system of color reading was standard in the trade. The difficulty in recent years in obtaining necessary glasses from England has resulted in the adoption of other standards. Recently, a spectrophotometer method was adopted as a tentative standard by the A.O.C.S. [J. Am. Oil. Chem. Soc. XXVI No. 6; 312-316 (1949)]. An instrument conforming to the standards set up, is the Coleman Junior Spectrophotometer Model 6B procurable from E. Machlett and Son, 220 E. 23rd St., New York 10.

LAST month mention was made of technical control methods in the soap plant, and some general principles were set down for purchasing specifications. We should like to continue the discussion particularly with reference to typical raw materials. One of the most common faults in the small plant, as observed by the writer, is to record

* For fuller discussion see page 77 of this issue.

each analysis in the order of receipt, instead of by classification. Thus, the analysis of a tallow may follow one for salt, which in turn may follow one for a foots. With this system it is almost impossible to check back on how previous receipts were running, and as often as not, and for the same reason, no two identical materials were analyzed for the same thing. Of course, frequency of receipt does have some bearing on how samples should be classified, but any material coming into the plant with a frequency of once a month should have its own separate record. Following a general outline of method, a typical case or two will be presented as an example.

Oils and Fats: These are purchased by grades set up in the trade. The material is sampled and held in the drum or car until the laboratory has completed the basic tests. Tallow is checked for moisture, impurity and unsaponifiables, abbreviated in the trade as MIU. This is used by the accounting department as a basis for weight settlement. It is also tested for color, free fatty acid and titer as a basis of quality settlement. If it conforms to the grade in question, a laboratory release is given and the lot is melted out. If, however, there is a question of quality, then an official sample is taken. The new sample is divided usually in triplicate, one is sent to the supplier, one retained for check analysis and the third retained by the sampler to be used in case of arbitration. The car may or may not be unloaded at this point depending on the seriousness of the defect. In a serious case, the car is held until an understanding is reached between supplier and purchaser. This procedure generally applies to all purchases.

In rare cases where contamination with other oils is suspected, further tests may be necessary such as the saponification number, iodine number, Halphen test, etc.

Caustic soda (liquid): Baume, free Na_2O , total Na_2O and iron (PPM).

Salt: % NaCl , moisture, and occasionally % Ca and Mg as chloride.

Sodium silicate (liquid):

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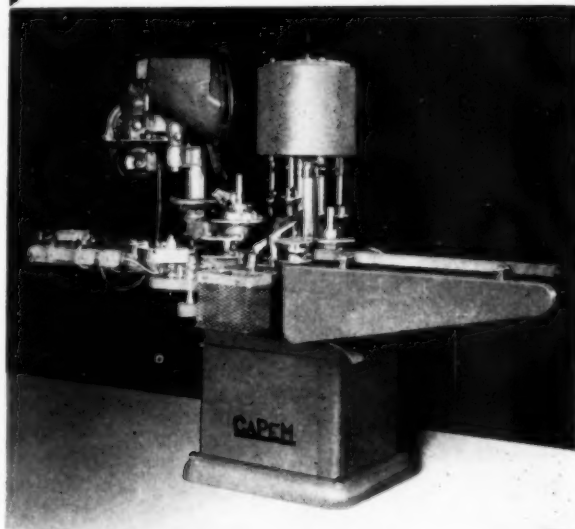
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SCREW CAPPER



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- Handles bottles, jars, cans or jugs of any size or shape.
- Delivers a perfect, LEAKPROOF seal at low cost.
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Write for prices and delivery.

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PACKAGING MACHINERY CORP.**
BUFFALO 13, N. Y.

Baume, occasionally % Na₂O, % SiO₂ and ratio.

Soda Ash: Density, moisture and possibly Na₂CO₃.

Phosphates: Moisture, P₂O₅. Occasionally, sulphates, chlorides, orthophosphates, etc.

Rosin: Color grade.

Foots: Total fatty acid (TFA).

Packing Materials: Too frequently packing materials are not treated in any systematic way with the result that difficulties may arise.

Cartons: Examine for character of board used and compare with standard set aside. Check size, printing for text, registration and color. Color should not bleed if a two per cent alkaline solution is run down the surface. This is necessary in case of dampness in storage. It should stand 10 hours in a standard Fade-o-meter without fading. Some soapers go so far as to keep colored metal strips for standards of comparison. It is desirable to have a board which will bend reasonably well without cracking otherwise an unsightly edge appears after the carton is made up, particularly on a dark colored background. A good board can be bent back on itself without showing a crack.

Containers: Check for printing, size, completeness of glue-up along side, etc. Mullen tests for strength are usually run by the maker and need only an occasional check, if any. The test requires a special piece of equipment and takes but a few seconds. Samples requiring such tests are best sent to regular analytical laboratories equipped for such work.

Wrapping: Check for size, color, staining and other points which might give trouble such as resilience of the stiffener, etc. These materials are usually purchased so irregularly that months may elapse between date of receipt and use. A prompt routine check, visual or otherwise may save considerable embarrassment later on. These materials often are deceptive in their simplicity. For example a glassine wrapper for a toilet bar was found in one instance to be the cause of end bar discoloration. It contained minute traces of sodium sulfite which reacted

Raw Material Analyses Table

TALLOW

Date	Car No.	Net Wt.	F.F.A.	Color	MIU	Titer
3/8	XS28635	63210	5.5	10/35	1.10	41.5
4/9	QR92473	82550	3.2	8/30	0.85	44.5
9/12	MO87632	62350	4.7	5/30	1.20	42.0

CAUSTIC SODA (Liquid)

Date	Car No.	Net Wt.	Bé	Free Na ₂ O	Total Na ₂ O	Cu	Fe
3/8	RS22446	62100	49.1	37.1	38.1	nil	25ppm
5/9	RQ23975	75500	50.0	37.5	38.6	nil	30ppm
7/10	RS22446	62410	49.7	37.4	38.2	nil	50ppm

with one of the ingredients of the perfume.

Miscellaneous products: Of less importance are many other raw materials used in the soap plant. However, the principle illustrated above will give some indication of what control should be exercised. Some companies run daily tests for moisture and ash on all coal received, with a complete analysis once a month. Others of similar size, have only sporadic samples taken for moisture only. Perfumes are bought in such a variety of ways and quantities that in general, soapers put themselves in the hands of their suppliers. Specifications are available for all these compounds, however, and an occasional check with the assistance of an outside analytical laboratory may be in order where the quantity involved warrants the expense. A specification for Ceylon citronella oil for example reads as follows:

Citronella Oil (Ceylon)

1. Specific gravity at 15°C...0.898-0.920
2. Refractive index at 20°C.....1.479-1.494
3. Rotation, —7 to —22.
4. Acetylizable content as geraniol, not less than 50.0%.
5. Citronellal by the hydroxylamine method, usually 9-12%.
6. Soluble in 1 to 10 volumes of 80% alcohol.
7. Must be natural, pure oil of good odor.

To summarize, raw material specifications and analyses serve three main purposes: (1) as a basis for settlement, (2) to maintain and improve standards of quality and (3) to assist the production department in their best use.

Announces New Case Sealer

A new semi-automatic case sealer which will handle cases of different widths, heights and lengths

without adjustment was announced recently by A-B-C Packaging Machine Corp., Quincy, Ill. Named the A-B-C "Sealall," the machine is said to eliminate the necessity of storage conveyors. No down time is required to change from one size case to another. The device operates at speeds of from one to five cases per minute.

New Brown Process Heaters

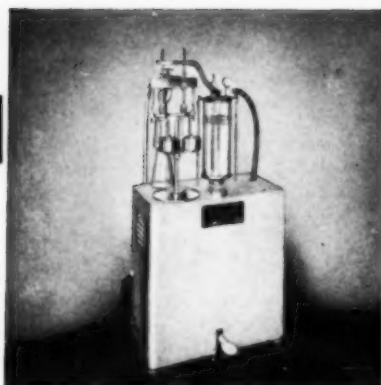
Brown Fintube Co., Elyria, O., recently issued bulletin No. 492 describing the company's "Thermo-Flo" process heaters which are said to facilitate heating and cooling of vegetable oils and other materials. The heaters are made of integrally bonded fintubes mounted vertically between heaters and are said to provide eight to ten times the heating surface afforded by bare pipe coils or jackets.

New Fisher Balance

A new balance which has only one pan and which does not require the addition of weights was announced recently by Fisher Scientific Co., Pittsburgh, Pa. The balance is said to be accurate within 1/20 of a milligram. Weight is read directly on the instrument panel. The company claims the balance is ideal for production control at test stations in oil and color plants.

New Downingtown Catalog

"Plate Fabrication and Heat Exchangers" describing and illustrating welding procedure qualifications and standard heat exchanger construction was published recently by Downingtown Iron Works, Downingtown, Pa. The 16-page bulletin describes construction details of heat exchange units manufactured by the company.



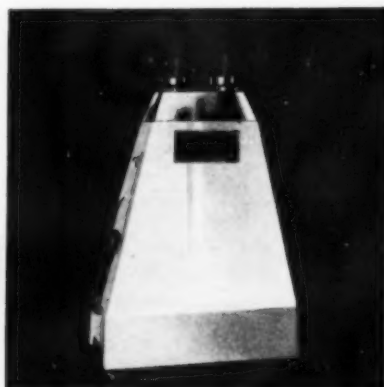
The U. S. SEMI-AUTOMATIC MODEL B-2
VACUUM FILLER

The most comprehensive filler for hand-fed operation. Interchangeable filling stems for any liquid or semi-liquid. Interchangeable parts for various size containers. Fills from any size storage container. Portable, motor equipped with cord and plug.

BOTH are 2-Tube Machines and handle two containers at a time. Both are fully automatic in operation except for placing and removing of containers (two at a time) requiring only ordinary skill for fast efficient operation.

Both machines are portable; can be used separately or in combination to clean and fill 50 to 75 gross a day. Write for the "Model B-2" and the "E-Z" Bulletins.

U. S. BOTTLERS' MACHINERY CO.
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THE E-Z TWO-TUBE CLEANER

Cleans 15 to 30 containers per minute by blasting with compressed air. Supplied portable with compressor and motor with cord and plug or with air filter for connection to your compressed air line.

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Saponified — Low Titre

STEARIC ACID

Saponified — Triple Pressed
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GLYCERINE

88% Saponification Crude

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Low Volatility, Low Acidity,
Improved Heat Stability,
Mild Odor

Methyl Cellosolve* Stearate

Butyl Cellosolve* Stearate

Methyl Cellosolve* Oleate

Butyl Oleate

Butyl Stearate

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No. 2,478,417, Process of Recovering Glycerine from Fermentation Concentrates, patented August 9, 1949 by Nathan M. Mnookin, Kansas City, Mo., assignor to Colgate-Palmolive-Peet Co., Jersey City, N. J., a corporation of Delaware. The patent covers the process of recovering glycerine

from a concentrate of a fermentation mash containing glycerine and inorganic salts which comprises treating said concentrate with a propyl lactate and separating the extract from the remaining concentrate.

No. 2,479,041, Glycerine Extraction Process, patented August 16, 1949 by Joseph Clifton Elgin, Princeton, N. J., assignor to Colgate-Palmolive-Peet Co., Jersey City, N. J., a corporation of Delaware. The patent describes the process of concentrating aqueous glycerine solutions which comprises contacting a relatively concentrated aqueous glycerine solution with at least one organic solvent which is ordinarily at least partially immiscible with glycerine and which dissolves a substantial quantity of water at the operating temperature in the presence of sufficient glycerine to form at least two liquid phases under the operating conditions, separating the two layers to obtain a more highly concentrated glycerine from the raffinate, subsequently contacting the thus concentrated glycerine solution with at least one different organic

solvent which under the operating conditions existing in this second solvent treatment step dissolves a substantial amount of one of the liquid components of the glycerine solution in a higher ratio to the other components than in the solution being treated in this second solvent treatment step, in such proportions and under such conditions that at least two liquid phases are formed, and recovering the glycerine from the phase in which it is in a higher ratio.

No. 2,479,111, Production of Hydrogen Peroxide by the Partial Oxidation of Alcohols, patented August 16, 1949 by Charles Roberts Harris, Lockport, N. Y., assignor to E. I. du Pont de Nemours & Co., Wilmington, Del., a corporation of Delaware. A cyclic process is covered which comprises continuously mixing air with the vapors of an azeotropic mixture of water and an alcohol selected from the group consisting of primary and secondary alcohols containing from one to 10 carbon atoms in such proportion that said mixture contains not more than 20 per cent by volume of oxygen, about two to 50 volumes of alcohol to one volume of oxygen, and not more than 10 volumes of nitrogen and water vapor to one volume of oxygen, flowing said mixture through a reaction space at a temperature of about 350 to 500° C. at such rate that 10 to 80

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At pH7, 10 cc of VERSENE Fe-3 sequesters 167 mg. of ferric iron plus 158 mg. of calcium. At this pH it is nearly 10 times more effective in sequestering trivalent iron than at pH12. Maximum effectiveness on alkaline earth ions is at about pH9 and a further increase in pH has little additional effect.



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(REGULAR)

Regular VERSENE is an exceptionally versatile product for the Soap Industry. It is chemically known as Ethylene diamine tetra acetic acid tetra sodium salt. Versene does the following things with great effectiveness.

SOFTENS WATER . . . without the formation of precipitates. It forms soluble non-ionic compounds with alkaline earth and other ions such as ferrous ions which cause hardness in water. VERSENE is the only sequestering agent that can be manufactured into soap and remain in it as a water softener without decomposition.

CLARIFIES LIQUID SOAP . . . increases foam and rinsibility. Eliminates precipitates by removing interfering metal ions through formation of inactive and stable complexes of VERSENE.

ANTI-OXIDANT . . . for fats, oils, soaps, fatty acids, and other organic materials. Minute amounts of VERSENE act as a preservative and prevent rancidity.

DISSOLVES GREASE AND FOOD DEPOSITS . . . acts as a buffering agent. Saponifies fats. "Solubilizes" and partly hydrolyzes proteins. Provides two-way cleansing action.

PURIFIES ORGANIC MATERIALS . . . Organic materials contaminated with metals may be purified by the addition of small quantities of VERSENE. The offending metals are complexed and their ion activity reduced. The complex compound may in most cases be easily removed from the organic material thus insuring a higher grade product.

Regular VERSENE is available either as a pale, straw-colored aqueous solution or as a dry, white powder.

Write for samples, further applications and complete specifications.

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Crude and refined prime
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CRESYLIC ACIDS: The entire range—in standard grades or to specifications.

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XYLENOLS: Low boiling, high boiling, symmetrical.

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per cent of the oxygen is reacted, condensing the effluent vapors, continuously adding water to the condensate, subjecting said condensate to continuous fractional distillation to separate therefrom aqueous hydrogen peroxide solution, carbonyl compound, and an azeotropic mixture of alcohol and water vapors, and recycling said azeotropic mixture.

No. 2,479,275, Fungicidal Composition Comprising a Phenyl Mercury Salt and Excess Lactic Acid, patented August 16, 1949 by Frank J. Sowa, Cranford, N. J. A composition is patented for rendering materials resistant to the action of fungi comprising an aqueous solution containing a phenyl mercury compound and from $\frac{1}{2}$ to 20 moles of lactic acid for each mole of the phenyl mercury compound in the solution.

No. 2,479,628, Alkali-Organic Solvent Paint Remover, patented August 23, 1949 by Lester E. Kuentzel, Wyandotte, Mich., assignor to Wyandotte Chemicals Corp., Wyandotte, Mich., a corporation of Michigan. The patent describes an alkali-organic solvent, two phase liquid-solid, concentrated paint remover composition adapted to be made up into approximately a nine per cent by weight, single phase water solution, consisting of the following ingredients formu-

lated in approximately the correspondingly stated percentage by weight:

Constituents:	Per cent by weight
Sodium metasilicate, pentahydrate	18.75
Sodium carbonate	7.50
Sodium bicarbonate	6.75
Sodium thiosulfate, pentahydrate	3.75
C ₁₂₋₂₀ alkyl-sulfonate wetting agent	0.75
Ethylene glycol monobutyl ether	62.50
	100.00

No. 2,479,629, Alkali-Organic Solvent Paint Remover, patented August 23, 1949 by Lester E. Kuentzel, Wyandotte, Mich., and Ralph H. McKee, New York, N. Y., assignors to Wyandotte Chemicals Corp., Wyandotte, Mich., a corporation of Michigan. The patent covers an alkali-organic solvent type paint remover composition in the form of a single, homogeneous liquid phase, consisting of by weight, at least 50% water, nine to 15% of a mixture of sodium metasilicate, sodium carbonate and sodium bicarbonate each present in an appreciable proportion with respect to each other, 15 to 20% alkali metal xylene sulfonate, and the balance ethylene glycol monobutyl ether.

No. 2,478,089, Process of Refining Glyceride Oils, patented August 2, 1949 by Benjamin Clayton, Houston, Tex., assignor, by mesne assignments, to Benjamin Clayton, Houston, Tex., doing business as Refining Unincorporated. The patent describes the process of removing free fatty acids from a glyceride oil containing said free fatty acids, which process comprises, forming at a temperature between 200° and 300° C. a confined flowing stream of an intimate mixture of said glyceride oil and an amount of water between approximately one and four times the amount of said free fatty acids in said glyceride oil, discharging said stream into a vapor-separating chamber having a vacuum therein at a time not more than approximately five minutes after the forming of said mixture at said temperature as a mixture of liquid glyceride oil and water and fatty acid vapors, the time during which said water is in contact with said oil at said temperature being sufficiently short to prevent substantial hydrolysis of said oil, withdrawing said vapors from said chamber at a rate sufficient to maintain an absolute pressure therein at least as low as one-quarter inch of mercury, condensing said vapors and recovering fatty acids, and separately withdrawing liquid glyceride oil from said chamber and promptly cooling said glyceride oil.

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for better soap*

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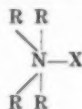
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Pale Wood Rosins that mean a better soap . . . with a minimum of labor . . . because every batch of the same rosin shipped is identical with every previous batch. This enables you to have Uniformity in your soap with never a need to adjust your formula.

NEWPORT INDUSTRIES, INC.
230 PARK AVENUE NEW YORK 17, N. Y.

No. 2,479,850, Process of Killing Bacteria in Presence of a Fatty Acid Soap with Quaternary Compounds, patented August 23, 1949 by Henry C. Marks, Glen Ridge, N. J., assignor to Wallace & Tiernan Products, Inc., a corporation of New Jersey. The patent describes a method of killing bacteria in the presence of a fatty acid soap which comprises contacting the bacteria and the said soap, with an aqueous solution of an appreciably water soluble quaternary ammonium salt that when dissolved in water gives a surface active antiseptic cation and is of the general formula



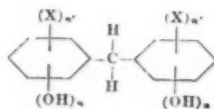
in which one R represents a long chain alkyl group containing 10 to 20 carbon atoms, the remaining R's represent monovalent linkages to groups containing carbon and hydrogen, and X represents an anionic component, and a water soluble bivalent metal salt that does not precipitate the quaternary ammonium salt when the quaternary ammonium salt is dissolved in water in the proportion required to form an antiseptic solution and the metal salt is dissolved in amount at least approximately equal to that of the quaternary salt, the metal salt being used in said amount.

No. 2,480,564, Soap Manufacture, patented August 30, 1949 by William E. Forney, Merchantville, N. J., assignor to Cities Service Oil Company, New York, N. Y., a corporation of Pennsylvania. The process of making an oil soluble soap of wax acids is covered which comprises the steps of treating a naphtha solution of substantially hydroxy-acid-free oxidized petroleum wax with ammonia in such quantity as to convert its organic acid-ester constituents to ammonium salts, reacting such salts in naphtha solution with magnesium oxide to convert them to magnesium soaps, said reaction being carried out at a temperature such as to drive off the displaced ammonia and water, and separating the magnesium soaps from the naphtha solution.

No. 2,480,332, Method of Making Mixed Glycerol Esters of Fatty and Hydroxy Acids, patented August 30, 1949 by Lawrence L. Little, Morris Plains, N. J., assignor to E. F. Drew & Co., Inc., New York, N. Y., a corporation of Delaware. A method is covered which comprises providing the glycerole ester of a saturated fatty acid having from 12 to 22 carbon atoms, said ester having at least one free OH radical on the glyceryl group, mixing the same with an acid having the following general formula: $\text{R}(\text{OH})_n\text{COOH}$ where R is a hydrocarbon radical having from one to five carbon atoms and n is a whole

number from one to five, heating said mixture to cause said hydroxy acid to combine with the free OH radical of said ester, the reaction product containing a small amount of tri-hydroxy-acid glyceride, and dissolving said glyceride from said reaction product.

No. 2,480,556, Bactericidal Compositions, patented August 30, 1949 by Arthur Henry Craig, Jr., and Albert L. Kleckner, Indianapolis, Ind., assignors to Allied Laboratories, Inc., Kansas City, Mo., a corporation of Delaware. The patent describes a bacteriostatic composition, having a synergistic effect, containing as the essential active ingredients a substance selected from the group consisting of sulfanilamide and sulfanilamide derivatives having bacteriostatic action and a symmetrically substituted diphenylmethane having the following formula:



in which X represents a halogen selected from the group consisting of chlorine and bromine, n represents a numeral selected from the group consisting of 1 and 2, n' represents a numeral selected from the group consisting of 1, 2, 3 and 4, and wherein a hydroxy group on each of the benzene rings is in the 2 position and a halogen on each of the benzene rings is in the 5 position.

No. 2,480,579, Detergent Products and Their Preparation, patented August 30, 1949 by Stanley Joseph Holuba, North Bergen, N. J., assignor to Colgate-Palmolive-Peet Co., Jersey City, N. J., a corporation of Delaware. The patent covers detergent particles which comprise a core of water-soluble organic sulphonate detergent and a surface coating comprising alkali metal silicate.

No. 2,480,730, Method of Producing a Free-Flowing Granular Non-soap Detergent, patented August 30, 1949 by Bradford C. Hafford, Westfield, N. J., and James S. Parsons, Lexington, Va., assignors to Food Machinery and Chemical Corporation, New York, N. Y., a corporation of Delaware. The method of producing a free flowing homogenous granular detergent composition is described which comprises heating a mixture of a surface active, anionic, non-soap, water-soluble salt, organic detergent with a substantially non-hydrated alkali metal polyphosphate in a quantity adequate to take up as water of hydration substantially all of the water to be added, and with water added in a quantity sufficient to form a slurry at the temperature to which the mass is heated, said elevated temperature

being below that at which decomposition of the detergent will occur, agitating the resulting mass until a homogeneous slurry is obtained, then solidifying the mixture merely by cooling the same without vaporizing off substantially any of the water whereby the water is left to be taken up as water of crystallization in the polyphosphate and reducing the solidified material to granular form whereby as a result the granules obtained are homogeneously constituted with the organic detergent intimately bound to the crystals of the polyphosphate in hydrate form.

No. 2,480,753, Method of Producing an Adsorbent Cleaning Material, patented August 30, 1949 by William S. W. McCarter, Bala-Cynwyd, Pa., assignor to Attapulugus Clay Co., Philadelphia, Pa., a corporation of Delaware. A method of producing an adsorbent cleaning material is covered, comprising forming a mixture of from one to 30 parts by weight of cellulosic material selected from the group consisting of sawdust, wood flour, and paper pulp, and from 99 to 70 parts by weight of fuller's earth, adjusting the water content of the mixture to a value between 40% and 60% by weight, extruding the mixture at elevated pressure above 100 pounds per square inch, drying the extruded mixture, reducing the dried mixture to granular particles, and calcining the particles at a temperature between 750° F. and 1200° F. for a period of time sufficient to obtain a volatile matter content between one per cent and 10 per cent by weight.

No. 2,480,010, Antifungus Wrapper and Method of Pest Control, patented August 23, 1949 by Lawrence H. Flett, Scarsdale, N. Y., assignor to Allied Chemical & Dye Corp., New York, N. Y., a corporation of New York. A method of pest control which comprises subjecting organic material subject to infestation to the action of a dialkyl ester of α,β-dichlorosuccinic acid in which the alkyl groups each contain not more than four carbon atoms.

Peroxides in Fats

By use of the polarographic method, it has been shown that at least three different peroxide structures are present in the early stages of oxidation of fats, and persist during extensive autoxidation. Autoxidation of lard at 100°C. is shown to give reduction curves which are much different from those obtained when lard is autoxidized at 45°C. W. R. Lewis and F. W. Quackenbush, *J. Am. Oil Chemists' Soc.* 26, 53-7 (1949).

SANITARY PRODUCTS

A SECTION OF SOAP

JUST another warning! Those who have not registered their insecticides, disinfectants, weed killers, and the like under the new federal insecticide law with the Insecticide Division of the U. S. Department of Agriculture should act immediately. If products are shipped across a state line and are unregistered, they are subject to seizure by the government. We warned our readers two months ago along this same line. Many still ignore the warning and sooner or later are bound to run head-on into trouble.

COME January and the much-publicized hearings on insecticide and other tolerances in foodstuffs will begin before the Food and Drug Administration in Washington. From the looks of things now, these hearings may go on for a year or more. The job is that big. Supposedly, when the reams of testimony are completed, FDA officials will sit down and set tolerances for various chemical substances used to protect our food while it is growing and also before and after it goes to market. Only those familiar with the multiplicity of problems involved have a conception of the undertaking faced by FDA. Criticism of FDA for not having done this job before is specious. To do it properly and intelligently heretofore has been simply a physical impossibility, and FDA obviously has refused to undertake it on any other basis.

Chiefly, agricultural insecticides will be involved in these hearings. Interest of the producer of household insecticides appears offhand to be incidental only. Nevertheless, where household insecticides play a part in food processing plants or in the protection of stored foods, the results of these hearings may have a very direct bearing on the future composition and use of such prod-

ucts. From this viewpoint, the hearings will affect directly the business of every insecticide manufacturer in the country.

MISREPRESENTATION in the sale of soap specialties, cleansers, and other janitor supplies is not a new problem for the industry. Extravagant claims made verbally by salesmen have been a thorn in the side of reputable houses for many years. But the fact that some firms condone this practice as long as their men bring in the business has always been more disturbing than the misrepresentation itself. Recent sharper competition appears to have brought on a growing wave of price cutting, quality reduction, and attendant misrepresentation.

As far as we can judge, many janitor supply houses are far less interested in the quality of the products which they sell than in low price, good profit and repeat orders. In short, if a manufacturer's salesman sells them a supposed 40 per cent liquid soap which in reality is only 25 per cent, they don't care too much. If the misrepresented product can be sold by them at a price and the user repeats his order, they seem to have no further interest in the matter. They assume that the user is satisfied or he would not order again.

This attitude by some jobbers is obviously shortsighted. At the beginning, all is rosy. But, only in the beginning. It goes on and on until the chiseling reaches the point where the user becomes a lost customer. In other words, sooner or later this progressive quality chiseling, — and it is always progressive, — explodes in the jobber's face. He takes the rap because he sold the goods. That's why a jobber who condones misrepresentation by manufacturers and who buys their goods is the real sucker in this triangle.

Cinerin I Homolog Tested

A preliminary evaluation of the insecticidal effectiveness
of the completely synthetic allyl homolog of Cinerin I.

By **R. B. Stoddard and W. E. Dove**

U. S. Industrial Chemicals, Inc.

THE public announcement by Schechter, Green, and La Forge (1949) of the successful synthesis of esters closely analogous to cinerin I, previously isolated by Dr. La Forge and his associates as one of the constituents of natural pyrethrum, electrified the insecticide world. For the first time, it appeared that the door had been opened to the practical commercial synthesis of chemicals which might have some or all of the extraordinary characteristics of natural pyrethrum. The announcement marked the successful culmination of long and fruitful research by Dr. La Forge and his associates. They had not only isolated and determined the structure of the four natural active principles of pyrethrum flowers, but had, in addition, confirmed the structure of one of them by the successful synthesis of a practically identical compound.

Initial enthusiasm was modified by the realization that the adaptation of this laboratory synthesis to successful economic commercial production might be a long and difficult task. Actually, the adaptation of the synthesis to commercial production has not been as difficult as was anticipated. U. S. Industrial Chemicals, Inc., has been making the completely synthetic allyl homolog of cinerin I in substantial quantities in the laboratory for five months, and in September announced its early commercial production on a sufficiently large scale and at a sufficiently reasonable cost to make the compound freely available for experimental and demonstrational purposes, with the assurance that it will be avail-

able for commercial uses as rapidly as it is likely to be needed. Its similar availability from other sources appears to be a reasonable expectation.

The unexpectedly rapid progress made in the commercial production and consequent availability of the new chemical requires that emphasis be shifted immediately to a realistic appraisal of its entomological behavior and its entomological and, possibly, toxicological limitations.

Entomological studies have been proceeding as rapidly as possible within the limitations of the facilities available when the synthetic compound was first announced. Many phases relating to the utilization of the new chemical and its limitations are being investigated currently, but the chemical phases relative to commercial production have proceeded at a rate much faster than that of the necessary entomological research. A vast amount of work remains to be done to appraise the usefulness of the chemical and to determine where and, particularly, how it can be used.

As a preliminary to this limited presentation of the entomological evaluation at this time, it is vitally necessary to identify the chemical under discussion in relation to the natural active principles of pyrethrum flowers. It was inevitable that initial announcements, no matter how accurately worded, would refer to the similarity of the new chemical to natural pyrethrum which, in turn, gave rise to an equally inevitable tendency to speak and to think of it in terms of synthetic pyrethrum or synthetic pyre-

thrins. Such reference is inaccurate and misleading, and however difficult it may be to avoid, it must be avoided as far as possible in order not to give rise to unfounded delusions and expectations.

Dr. La Forge and his co-workers have demonstrated that the natural active principles of pyrethrum flowers actually are four compounds, which they have isolated and identified as pyrethrin I, cinerin I, pyrethrin II, and cinerin II. Of these, cinerin I, owing to its simpler structure, was less difficult to prepare synthetically. The announcement was that of the successful synthesis of several esters closely analogous to cinerin I. Of these esters, the allyl homolog of cinerin I possesses the highest order of toxicity on houseflies.

The partially synthetic pyrethrin-like compound that was stated in the press releases to be six times as toxic to houseflies as the combined active principles of pyrethrum flowers was, as pointed out by Gersdorff (1949), the allyl derivative in which the acid component was the natural chrysanthemum monocarboxylic acid from pyrethrum flowers. This highly effective and theoretically interesting compound may never be made except as a laboratory curiosity, and it should not be confused with the completely synthetic esters.

The chemical referred to throughout this paper is the completely synthetic allyl homolog of cinerin I. This is the substance designated by Gersdorff (1949) as the allyl cyclopentenolone esterified with the

synthetic (racemic chrysanthemum monocarboxylic acid).

It will be noted that the chemical is not only not exactly identical in structure with natural cinerin I, but also that cinerin I itself is only one of the four constituents or compounds isolated from pyrethrum flowers, which are responsible for the unique advantages associated with pyrethrum. Obviously, therefore, the synthetic compound cannot be correctly spoken or thought of as a synthetic duplication of any of the active principles of pyrethrum. It is not surprising that a study of its entomological behavior has disclosed marked differences, divergencies and shortcomings, many of which should have been anticipated.

From the viewpoint of toxicological effect on warm-blooded animals, the close resemblance of the synthetic compound to one of the natural active principles of pyrethrum leads easily to an untenable assumption as to equal freedom from toxicological hazards. Two factors must be taken into

account when considering this assumption: (1) minor changes in structure frequently cause marked differences in toxicity to warm-blooded animals, (2) a chemical prepared on a commercial scale may contain impurities of a toxic nature not easily removed by practicable processes.

Materials and Procedures

THE material used in all laboratory tests was the synthetic allyl homolog of cinerin I synthesized in the research and development laboratories, U. S. Industrial Chemicals, Inc., Baltimore, Md. In most of the tests the U. S. I. material was cross-checked with samples of the same compound made by the Bureau of Entomology and Plant Quarantine, United States Department of Agriculture. Sprays were made by dissolving the compound in odorless kerosene at selected concentrations. Dusts were made by impregnation of selected concentrations on an organic base followed by dilution with pyrophyllite. Pyrethrum standards of

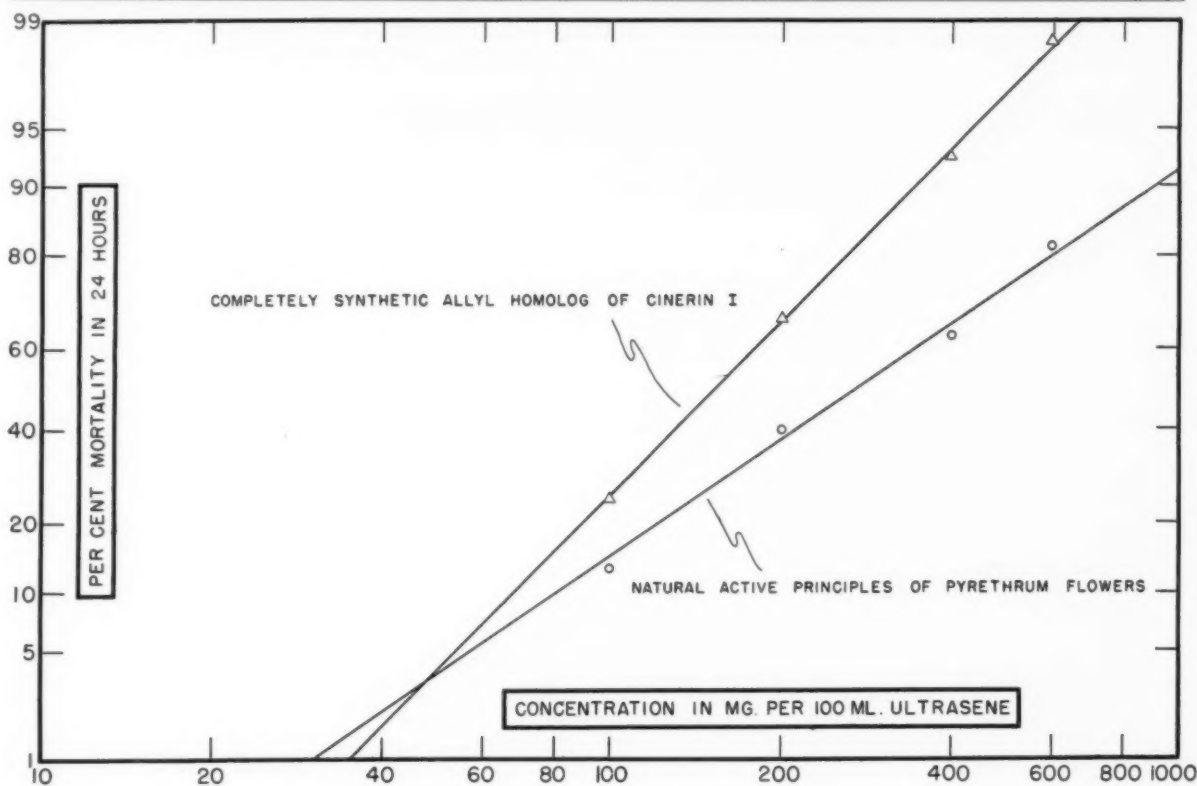
comparison were prepared from an extract of pyrethrum flowers of known pyrethrin content.

The tests on adult houseflies reared by standard procedure were made by a modification of the turntable method (Campbell and Sullivan, 1938) and by the small-group Peet-Grady method (*Soap Blue Book*, 1949). The tests on adult males of the German cockroach were made by the proposed direct-spray method used in cooperative tests by member laboratories of the N.A.I.D.M. Tests of surface deposits of the new synthetic compound were made on adults of the confused flour beetle. Dusts were tested on nine species of insects affecting truck crops, using a modification of the settling-tower method described by Swingle *et al.* (1941).

Results

HOUSEFLIES: The results obtained in tests on adult houseflies by the turntable method are graphically illustrated in figure 1, and those from tests by the Peet-Grady

Fig. 1.—Dosage-mortality curves of natural active principle of pyrethrum flowers and synthetic allyl homolog of cinerin I on adult houseflies based on tests by the turntable method.



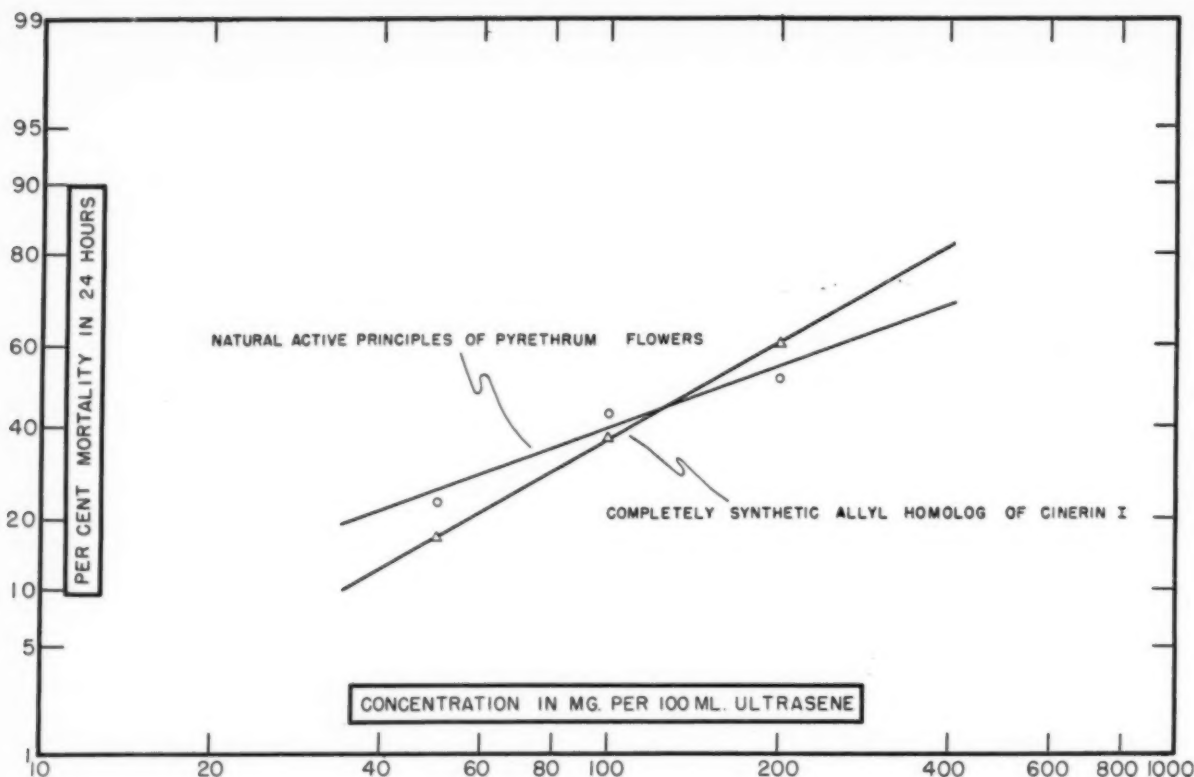


Fig. 2.—Dosage-mortality curves of natural active principles of pyrethrum flowers and synthetic allyl homolog of cinerin I on adult houseflies based on tests by the Peet-Grady method.

method are shown in figure 2. These graphs represent a direct comparison of the synthetic allyl homolog of cinerin I with the natural active principles of pyrethrum. Similar comparative tests of samples of the completely synthetic allyl homolog of cinerin I from the Bureau of Entomology and Plant Quarantine, United States Department of Agriculture, gave almost identical results in both types of tests.

In the tests on adult houseflies, both by the turntable method and by the Peet-Grady method, the slopes of the dosage-mortality curves are steeper for the synthetic allyl homolog of cinerin I than for the natural active principles of pyrethrum flowers. This difference in the slope of the two lines has been consistent in all tests in which several concentrations were used. Furthermore, the lines for the two materials cross, so that at low concentrations the synthetic compound is less effective, while at high concentrations it is more effective, than the natural active principles of pyrethrum. For example, in the tests by the Peet-Grady

method, the completely synthetic material and the natural active principles of pyrethrum flowers are approximately equal in effectiveness on adult houseflies at concentrations of about 150 mg. per 100 ml. The synthetic compound is more effective above the concentration of 150 mg. per 100 ml., and is less effective below this concentration than the natural active principles of pyrethrum flowers. In the tests made on adult houseflies by the turntable method, the lines representing the dosage-mortality curves cross at a much lower concentration (less than 100 mg. per 100 ml.), but the observation that the comparative effectiveness of the completely synthetic allyl homolog of cinerin I depends on the levels of concentrations at which tested is equally applicable to the two methods of testing.

When tested at relatively high levels of concentrations by the turntable method, the completely synthetic allyl homolog of cinerin I is apparently considerably more effective against adult houseflies than the natural active

principles of pyrethrum flowers. This apparent margin of superiority practically disappears, however, when the two materials are tested by the Peet-Grady method.

German Cockroaches.—The results obtained in laboratory tests on adult males of the German cockroach by the direct-spray method are shown in table 1.

WITHOUT attempting to point out a detailed comparison of the relative effectiveness of the two materials at several concentrations, it is evident that within the practicable limits of concentration for this type of application, the synthetic allyl homolog of cinerin I is inferior in mortality as well as in initial knockdown to the natural active principles of pyrethrum flowers by this method of testing. It seems entirely reasonable that other current methods of testing and actual use in practical application would demonstrate that the synthetic compound possesses a much lower order of effectiveness than the natural active

principles of pyrethrum flowers against German cockroaches.

Confused Flour Beetles.—Tests were made in the laboratory in which surface deposits on glass plates of the synthetic compound and of the natural active principles of pyrethrum flowers were compared against adults of the confused flour beetle at three dosage levels or rates of deposit per unit area. In all cases, the synthetic allyl homolog of cinerin I was less effective than comparable deposits of the natural active principles of pyrethrum flowers. Surface deposits of the synthetic compound paralyzed the adult confused flour beetles somewhat less rapidly than comparable surface deposits of the natural active principles of pyrethrum flowers. On removal from the treated surfaces, however, the confused flour beetles that had been exposed to the surface deposits of the synthetic compound recovered much more rapidly and completely than those that had been exposed to the natural pyrethrins.

Truck Crop Insects.—Comparative tests of dusts containing the synthetic compound and of similar dusts containing the same concentrations of the natural active principles of pyrethrum flowers were made by a modification of the settling tower method in the laboratory on adults of the Japanese beetle, the Colorado potato beetle, the spotted cucumber beetle, the striped cucumber beetle, the Harlequin bug, adults and larvae of the Mexican bean beetle, adults and nymphs of the squash bug, nymphs of the melon aphid, and larvae of the corn earworm. The proper insecticidal formulations containing the natural active principles of pyrethrum flowers are known to be highly effective against

the insects in this group, although in practice the natural pyrethrum product is not used against all of these insects because of its relatively high cost.

The dosages and concentrations of the natural active principles of pyrethrum flowers used in these tests on the nine species listed were designed to give mortality within the range of 50 to 95 per cent. The dusts containing the natural pyrethrum product produced mortality in this range. Comparable concentrations and dosages of dusts containing the synthetic allyl homolog of cinerin I were in all cases less effective against all species than the natural product. The relative effectiveness of the two materials varied markedly with the species of insect used. In the tests on one species, the synthetic compound appeared to be almost completely ineffective in this preliminary study. The synthetic compound will require careful investigation to appraise its comparative effectiveness against this group of insects as well as against others that are usually included in this category.

Discussion

ON HOUSEFLIES the synthetic compound is apparently equal in effectiveness to the natural active principles of pyrethrum flowers, at least under some conditions. No numerical rating of the comparative effectiveness of the completely synthetic allyl compound can be assigned from this preliminary work, because of the variable ratio shown at different concentrations and in different test methods. This behavior appears to be characteristic of the chemical. In tests by both the turntable method and the Peet-Grady method, samples which

were cross-checked with similar samples supplied by the Bureau of Entomology and Plant Quarantine and made by Dr. La Forge and his associates exhibited the same characteristic behavior.

Results obtained by other laboratories using the same or other test methods will, no doubt, vary as widely as those summarized here, and may show other variations not encountered here. Making due allowances for the anticipated divergencies, however, it appears that the completely synthetic allyl homolog of cinerin I is about equivalent to the natural active principles of pyrethrum flowers on adult houseflies at certain levels and under certain conditions. Obviously, its effective use in insecticide formulations, even against houseflies, will require further study.

In the preliminary tests against insects other than houseflies, which included German cockroaches, confused flour beetles, and nine species of insects affecting truck crops, it was apparent that the synthetic compound was considerably less effective than natural pyrethrum and, in a few instances, almost ineffective. It is understood that similar results are being encountered elsewhere, particularly in tests on adult mosquitoes and bedbugs.

Thus, it is apparent that the completely synthetic allyl compound is not as effective on most insects other than houseflies as was originally hoped and expected. The picture is further complicated by wide variations in relative effectiveness against different species and by the still undetermined influence which variations in concentration and formulation may introduce.

Conclusions

RECOGNIZING that existing information is inadequate in many respects, it is possible to draw simple broad conclusions, which appear to be fundamentally sound as applied to the completely synthetic allyl homolog of cinerin I.

(1) The new chemical cannot be spoken or thought of as synthetic pyrethrum. Any assumption that

(Turn to Page 161)

TABLE 1.—Comparative Tests on Adult Male German Cockroaches by the Direct Spray Method. (Average of 20 Replicates of Ten Insects Each.)

Material	Concentration mg. per 100 ml.	Percent Knockdown in 1 Hour	Percent Dead and Moribund in 24 Hrs.
Natural Pyrethrins	50	90	82
Natural Pyrethrins	100	98	93
Allyl Homolog of Cinerin I	100	48	64
Allyl Homolog of Cinerin I	200	84	87

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5 Gal. Lined Cans	\$2.15 Gal.
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100 Gal. Lots	Less 10¢ Gal.
250 Gal. Lots	Less 20¢ Gal.
500 Gal. Lots	Less 30¢ Gal.

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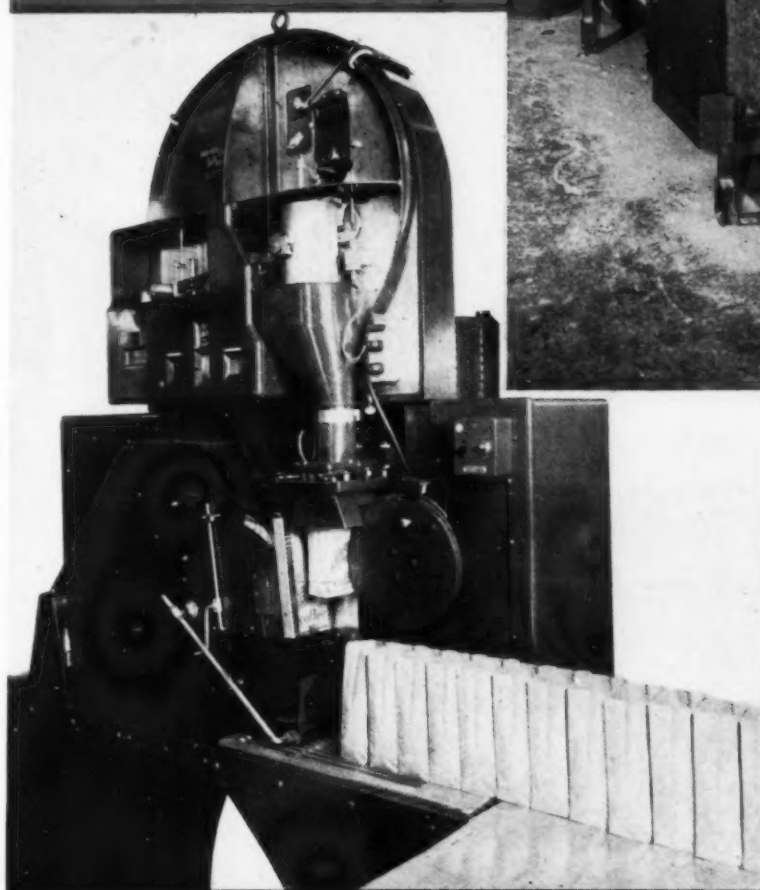
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Powder Packaging

By
E. G. Thomssen



The machine illustrated above is the "Bar-Nun" automatic bag feeder, opener and weigher, made by B. F. Gump Co., Chicago. The unit automatically feeds, opens, fills and ejects bags. Weight range is 8 oz. to one lb.

In choosing dry powder packaging equipment, factors such as type of plant, size and speed of operation, package size, etc., are important.



Above: The "Packomatic" filling unit made by J. L. Ferguson Co., Joliet, Ill., glues, fills and seals cartons at high speeds.

VERY large quantities of powdered and granulated products are packaged in the soap, detergent and insecticide industries. Considerations in powder packaging include the consistency of the various substances, the size and type of package, the putting-up locale, the volume and other details so numerous that it is difficult to cover every minor item of this branch of manufacture. In discussing dry filling operations, we will attempt to include the more important points as they apply to small, medium and large operations.

The choice of a filling machine or filler employed in packaging dry materials is affected by various factors. Included among these are such details as number of stories available in a building, the number of products to be filled, the consistency of the products, the volume or output required, the size of the individual packages, the

type of container to be filled, and the subsequent operations after the packages are filled. These make necessary considerable care in the selection of fillers. In view of the importance of these details, we will consider some of them more fully.

The type of building in which the machines are to be installed influences to a considerable degree the method of feeding the powders to the filler. If the dry product can be handled through three or four floors, the problem of mixing, sifting, if necessary, storing and filling is much simplified, since the product can be worked downward from floor to floor by gravity. On the other hand, if a single or two-story building is available, the necessity of transporting powdered materials from the mixing to the filling machinery is more complicated, especially from the cleaning angle. When more than one powder is to be filled, it means even more labor for preparation.

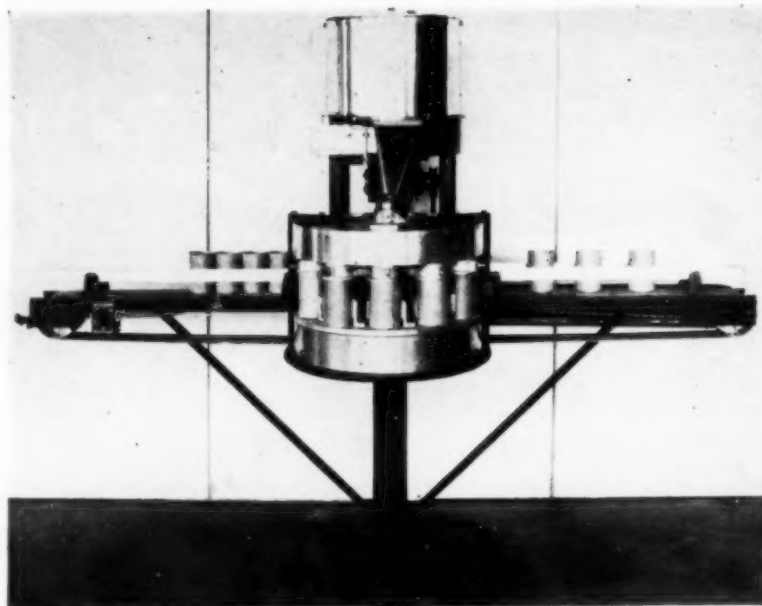
Flexibility in changing the filling machine over from one size or product to another and the ease with which it is done are of importance, as is the cost of parts to accomplish the change-over.

As fillers are frequently operated in connection with a conveyor table and labeler, on which a gang is employed, slow change-overs can cause the loss of much of the employees' time. For this reason, it is quite necessary that the transition be made rapidly.

The consistency of the powder product has much to do with its constant flow to filling mechanisms. It is a common sight to see the hoppers or feed pipes to a filler badly dented by being tapped too hard when bridging occurs, preventing the free flow of powders. Such difficulties may be corrected by the use of a small syntron or by rearranging the feed pipes and storage bins if they cause trouble.

The feed lines should be as short as possible and their inlet diameter should increase one inch for each 10 inches of feed line length.

Consistency has an important bearing on the type of filling mechanism to be used. Free flowing materials



The new automatic Weight Right Scale Co. filler.

present no problem and permit the use of cheaper fillers than those for materials that cake or bridge. Consistency also influences the volume of the fill. Some powders are fluffy when first made and settle down to a slack filled package. Such products should not be filled at once after mixing but should be stored in a settling bin until they reach their proper density. They may be filled also on two-station fillers with a tamping device between stations. If a product softens under heat, as many soap products are apt to do, filling augers that do not heat up must be used.

The volume to be filled in a required time is closely allied to the size of the package to be filled and the type of package. The volume not only includes actual packages per minute but output capacity of mixers and storage to keep fillers busy. By type of package we mean carton, bag, envelope, jar, canister or can. Some fillers are adapted to fill one type package better than another. In the case of carton filling, particularly, carton making, carton filling and carton sealing stations may be included as a unit. The same is true of bag and envelope filling equipment. It is often good policy to consider unit installations rather than purchase various individ-

ual machines and install them separately.

By subsequent operations is meant that another item or circular is to be included in the assembly or that operations such as capping or labeling are to be carried on after the package is filled. When subsequent operations are necessary, it is often advisable to use two slower fillers rather than one high speed machine. In addition to perfecting the actual filling operation other details must be considered carefully to obtain an efficient set-up. We have seen good filling equipment condemned because of gross oversights of many minor details.

Dry fillers or filling machines operate by several different principles. They include constant flow, automatic weighers usually used for discharging free-flowing products into the desired package; the measured volume type; the auger type, which drills in by weight or volume both free flowing and stagnant powders; and the vacuum method by which powdered substances are drawn into the containers by an intermittent vacuum. In addition there are semi-automatic and fully automatic machines available for filling containers at speeds of from 10 per minute upwards to hundreds per minute. Rather than describing these fill-

ing principles separately, we will consider the types of machines made by representative manufacturers who have cooperated in sending us their literature for the preparation of this article. Their equipment is described in alphabetical order.

Battle Creek (Mich.) Bread Wrapping Machine Co. offers two fillers, namely Model C volumetric filler and Model GW 40 weighing machine. Model C, an inexpensive, rugged unit, handles free-flowing products. Model GW 40 is a gross weight weighing machine that will handle soap chips, starch and other non free-flowing products. It may be hooked up with a BT-30 carton making machine if the products are packed in cartons. This company also makes carton forming, lining and sealing machines that are fully automatic.

Consolidated Packaging Machinery Corp. of Buffalo, is well known as the maker of Hoepner equipment. The line includes a complete range of automatic scales and bag closing equipment for a wide range of requirements. Items that simulate sugar, coffee, animal feeds and heavy chemicals are efficiently and economically packaged with Consolidated's fillers. Among the machines offered, are Model 90-E-4, which fills dry products, into textile bags, mainly, but also is readily convertible for use with paper bags with plain or taped closures. Model 02 is a fully enclosed scale with twin screw feeders. It finds many applications in the chemical industry. Model 6-E, with a capacity up to 60x10-lb. packages, has a duplex weighing arrangement for such free-flowing items as salt. The Synchronatic Sealtite automatic line is offered in three sizes. Bags from 1/2 lb. up to 10 lbs. may be filled with free-flowing products. The machine is automatic in that it feeds the bags from a magazine, opens, fills, settles, shapes and seals them at the rate of 30 to 60 per minute. If desired, part of these units may be omitted and added later. Model 84 rotary bagger fills 15 to 20x100-lb. bags per minute from an eight-spout turret and discharges them with a conveyor to a bag closing station. This bag filler will handle a

wide range of staple commodities of various types.

J. L. Ferguson Co. of Joliet, Ill., specializes in packaging equipment well known under the name "Packomatic." Ferguson equipment is installed in the plants of several of the large producers of soap products and detergents. The firm specializes in building compact, high speed units that glue, fill and seal cartons. The line also includes auger packers and weighers, net weight scales and volumetric fillers for accurately filling ounces or pounds. The "Packomatic" telescoping volumetric filler is designed for packaging semi- or free-flowing materials like cleansers, soap powders, soot removers and bowl cleaners. Used by large volume producers of these products, it fills round, rectangular or square bottom, sealed cartons and cans, jars or canisters. Waste and dust are eliminated by the use of this filler.

Other volumetric fillers made by Ferguson include a single spout table, semi-automatic type for small production up to four discharge spouts for greater speed and volume. The filling spouts are designed to handle a large range of package sizes. One large soaper has several installations of "Packomatic" equipment at different plants to fill soap flakes and granular soap. With this equipment the cartons are put into a magazine from which they leave one at a time to be opened, over-scored and glued. Next a carrier chain, which blocks, transports them through a folding assembly that opens the carton flaps on one side, folds and seals them, then transfers them to an overhead conveyor by a blow-over spout. After being filled they return to the gluing and folding assembly which closes the other carton end. From there the filled cartons pass through a compression unit which tightly seals them. The entire packaging operation including shipping case loader and sealer is automatic.

The mechanical division of General Mills, Minneapolis, features a line of Vacuflow Fillers. Three models are offered. Model E fills bulk containers up to 200 lbs. capacity to precise weights. Model D semi-automatically handles a large variety of products for

small or medium sizes. The Rotary Model fills up to 300 packages per minute. Cans, jars or bottles are handled fully automatically with an eight, 12, 16 or 24 filling head attachment. An intermittent vacuum draws the powdered substances into the containers. This permits accurate net weight control at high filling speeds. The operations are clean and dustless. Since General Mills are large users of packaging machinery, they have incorporated their actual filling experience into these machines.

B. F. Gump Co., Chicago, has built packaging machinery for many years. The Gump line of net weighers comprises gravity feed and power feed fillers of capacities from three oz. up to 50 lbs. The Edtbauer line of duplex net weighers comes in four models and four sizes. Power for these is necessary only when the materials do not flow readily to the hopper. Power feed models are made in three types: pin feed for powders or granules, disc feed for larger particles and either pin or disc feed with electrical controls. A large variety of materials such as calcimine, soap flakes, dry colors, animal feeds and various finer powders are weighed and filled on these machines. Another device made by this company is the No. 25 "Bar-Nun" net weigher. This machine gives accurate net weights on dry powders and granular materials to plus or minus 1/32 oz. per one oz. per unit weight. Its weight range is from three oz. to 1 1/2 lbs. and the normal operating speed is 35 per minute. For filling barrels and drums in weights of from 100 to 750 lbs. in weight, Gump offers the No. 41 "Vibro" packer. This device is used for settling dry materials in packages that have been filled.

Pneumatic Scale Corp., North Quincy, Mass., is known for a large line of packaging and labelling equipment. Its products are designed largely for medium and high speed filling machinery, which is entirely automatic. Pneumatic Scale Corp. makes units to feed cartons; form, seal and truck them; and fill, close and wrap if necessary. The fillers featured by Pneumatic include gross and net weight weighers, as well



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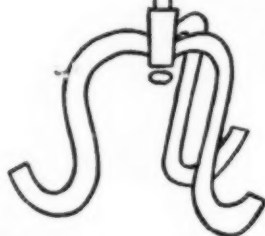
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as a combination filling and sealing machine. To these fillers the other units may be added for making up cartons, lining, sealing and tight wrapping them. For medium speed equipment, the two scale gross weigher at 20 to 35 per minute or the four scale net weigher of 30 to 70 per minute range are available. The weight range of these is from one oz. to 1½ lbs. with a certain degree of weight range possible on one machine. It takes from a quarter hour to an hour to change the package sizes or products. When high speed filling of from 30 to 100 per minute is required, four and six scale net weighers are available. These will feed a wide range of free flowing products and may be had equipped with dust control hoods. It takes from ½ to two hours to change over these machines for different sizes and products. They have an accuracy of plus or minus 1/16 oz. When bulky materials are filled, vibratory trays are supplied to settle the product to proper volume. Pneumatic Scale Corp.'s equipment handles some of the better known products of several soapers.

A new dry filler for all powdered and paste materials is offered by George C. Rodgers Co., New York. Consisting of an auger type filler with the mechanism located above the feed table, it fills rigid or non-rigid containers in sizes from 1/3 oz. to 10 lbs. at a rate as high as 60 per minute. The filling quantities are controlled by an electric timer, adjustments of which are made easily with a dial. The rotating speeds of the auger are variable and controlled by a hand wheel. No foot pedal is necessary to actuate the machine. Once the proper settings are made, it operates by itself with metronome rhythm. This machine handles all types of granules and powders. It fills bags, tubes, jars, cartons and envelopes. The maintenance cost is low.

Stokes & Smith Co. of Philadelphia, have contributed a long line of excellent dry fillers of the auger type. Their line includes semi-automatic machines which fill from 15 to 30 per minute and up to a filling rate of 120 per minute on fully automatic equipment. A brief survey of their

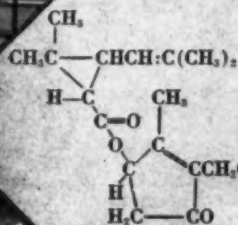
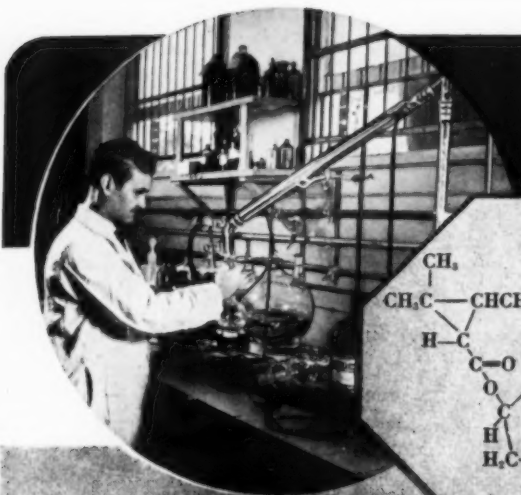
models includes the well-known "Universal" filler, a semi-automatic machine which fills by gross weight or volumetrically at 15-30 per minute in sizes from ½ oz. to five lbs. The G-1 filler for shallow cans or boxes of powder operates at 50 per minute; the G-3 fills packages that need a small degree of packing at 15 to 30 per minute and includes a capping press; the G-9 furnishes heavy packing pressure at 15-30 per minute and can be had with a cap press; the G-6 comes in single or duplex types and fills 35 or 70 units per minute; the HG-84 is an automatic duplex filler; the HG-85, a tandem filler, makes available automatically a bulk and dribble fill at 30 per minute or a complete fill at each station of 60 per minute; and last, is the HG-86-87 a four station device that fills 60 to 120 per minute. Capping presses are optional equipment. For products requiring settling in packages, tamping devices are available. Special augers may be had for dusty materials. Dust arresting augers also are supplied for use where needed. Stokes & Smith also manufacture a full line of carton filling and sealing equipment that operates at up to 160 units per minute; conveyor net weight scales; bag and envelope sealers; and automatic tight wrappers. Their "Transwrap" machine makes and fills cellophane envelopes.

Another leader in the dry filling field is Triangle Package Machinery Co., Chicago. The company makes a full line of weighers, volumetric fillers and auger packers. The "Elec-Tri-Pak" weighers are used extensively for powdered soap, soap flakes, chips and granules. These weighers come in several models and handle ounces or pounds. Single or multiple weighing sections regulate the filling speeds. Accurate adjustments of weight are provided through the patented "Acro" meter. Visual weighings are obtained by the "Elec-Tri-Pak," an ingenious system of light signals. Triangle weighers have other features such as a new simplified scale mechanism; a screening device for crumbs or fine particles; and a power rotating, weighing receptacle that records weights as small as ¼ oz. The volumetric fillers come in

several styles ranging from a 20-per-minute single cup table machine to a high speed 60-per-minute automatic filler. Conveyors for facilitating feeding of packages are provided upon request. Triangle's all-purpose auger packer provides a fast, efficient method of packing 20 to 30 packages per minute in a size range of one oz. to five lbs. It may be used for all kinds of powders. It requires no foot lever to operate, as the packages are automatically filled when in position. The packer is easy to clean, gives accurate fills and has an emergency switch for rapid shut-off. Other packers handling up to 50 lbs. capacity are to be had. These are Models SN, SNA and V.

U. S. Automatic Box Machinery Co., owner of National Packaging Machinery Co., Boston, sells a line of net weighers and automatic packers. The concern has high speed, volume fillers that operate at speeds of up to 125 units per minute. The company puts out lines that form cartons, then line, fill and close them with such items as cake toilet soap. Carton sealers, cellophane or wax paper wrapping machines complete the firm's packaging machines. The Scott net weigher with a capacity of ¼ to three lbs. at 35 dumps per minute is said to be the fastest single dump net weigher on the market. The GE Model is for gravity feed and the FJ Model, a power feeder. For fully automatic weighers the twin station Model JK is available at 70 per minute; for filling speeds of up to 160 per minute, the Model NJ Packer is recommended. These machines are dust proof in operation, can be quickly changed for varying auger speeds, have oilless bearings and a variable speed drive. They will handle most powdered or granular materials. Model TU-K, a new rotary net weighing fully automatic machine for free flowing or semi-free flowing materials at filling speeds of up to 60 per minute with a range of one oz. up to five lbs., is having a good reception in many directions. The company has had much and varied experience in the dry filling field.

Weigh Right Automatic Scale Co. of Joliet, Ill., has developments in package filling of interest to the smallest
(Turn to Page 149)



— more precisely:
allyl homolog
of Cinerin I

Credit is due the fifteen years' work of LaForge and Schechter (USDA) for the synthesis of the compound chemically diagrammed above and publicized by the Government in March. Industry research teams promptly undertook duplication of the process and our staff was able to announce in June the completion of laboratory manufacture of the compound to which we have assigned our trademarked name PYRESYN.

Entomological studies indicate it is comparable to natural pyrethrum on flies and mosquitoes. Evidence indicates that PYRESYN can be synergized with n-Propyl Isome (another Penick product) to enhance the control of other insects. Other systematic tests on a variety of insects are under way and reports will be published. Comparative data on knockdown, kill and residual effects are also being assembled. Simultaneously, pharmacological tests are in progress to establish the already fairly well-founded belief that the compound is no more toxic to warm-blooded animal life than pyrethrum whose low order of toxicity is universally recognized.

Paralleling the necessary tests mentioned above, PYRESYN is now in the process of commercial production and deliveries are scheduled for January 1st for the 1950 season. Quotations will initially be made in quantities from one pound to ton lots. Supplemental production is planned to meet demand.

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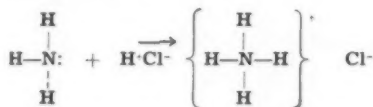
QUATERNARY AMMONIUM COMPOUNDS

A review—

By Myron W. Cucci
Milk Plant Specialties Corp.

THE quaternary ammonium compounds are members of a class of substances which contain a positively charged nitrogen atom to which four groups are attached. Their relationship to ammonia is apparent from the designation used.

The word quaternary comes from the Latin "quaternarius," which means consisting of four. Ammonium is derived from two words: ammonia, a gas which is said to have been first obtained from sal ammoniac near the temple of Jupiter, called Ammon, and; "onium," a suffix used to designate positively charged ions resulting from the union of a neutral molecule containing an unshared pair of electrons and a proton or positively charged radical. Thus, the ammonium ion results from the combination of ammonia and hydrochloric acid in the following manner:



From the equation it is evident that the nitrogen is positively charged and attached to four groups, any or all of which may be substituted by other groups, as for example, hydrocarbon radicals.

Although the quaternary ammonium compounds are regarded as derivatives of the parent substance, ammonia, their point of origin has been traced to the very unusual substance known as curare. Curare is a drug used by the Indian hunters of South America as an arrow poison. Sir Walter Raleigh is reported to have obtained it about 1595 from the natives who dwelled along the Orinoco river. Early in the nineteenth century explorers brought samples of curare to Europe, presumably as a curiosity. In 1844, Claude Bernard, the famous French physiologist, experimented with the drug for the purpose of determining its action on the body. From the study of the effects of nerve stimulation of animals which had been treated with curare he concluded that the location of the physiological action was at the junction of

the nerve and muscle—the myoneural junction.

The paralyzing action of curare led to its investigation in causing the relaxation of muscles in such convulsive conditions as epilepsy, rabies, tetanus, strychnine poisoning, and various tics.

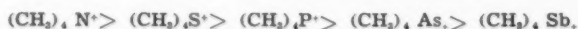
A medical interest in curare thus developed and led to a need for the isolation of the active component from the crude aqueous extract as prepared by the South Americans.

It had been known for some time that there were three varieties of plants which the natives packed in special containers. These vessels were bamboo, earthenware pot, and gourds. Hence, the varieties came to be known as tube, pot and calabash.

The assumption was made that the active ingredient was common to the three different plant sources of curare. However, this proved incorrect when it was discovered that each type of plant contained a separate and distinct chemical compound as the active component.

The problem, thus, was expanded to the isolation of three compounds instead of one.

IN an attempt to determine the chemical structure of curare it was found that the molecule contained, at least, one quaternary ammonium ion. The physiological significance of this evidence was investigated by administering doses of quaternary ammonium compounds to animals. The results showed that these compounds, as a group, produced paralyzing action—the relative individual strengths of which were referred to curare as a standard and called curariform activity. Further, it was shown that in addition to quaternary ammonium compounds such "onium" compounds as sulfonium, phosphonium, arsonium, and stibonium all possess curare activity. The onium salts in the order of decreasing intensity of curare action are as follows (1):



The relative position of the quaternary ammonium compounds on this activity scale justifies the extensive amount

of effort which has been expended over a period of generations in the study of this particular group. It would have been disheartening, indeed, if the recent establishment of this scale had shown the quaternary ammonium salts to be among the least active of the onium compounds. This would have meant that the early workers, who of necessity were groping in the dark, had headed in the wrong direction. Fortunately, such was not the case. However, in a sense, the work did prove to be misdirected.

In their zeal to study the pharmacological action of the quaternary ammonium compounds the early investigators neglected to study the bactericidal power of these salts. As a result, considerable time elapsed before it was learned that many of these compounds possessed extremely high bactericidal action.

It was not until 1935 that the German bacteriologist, Gerhardt Domagk, (2) demonstrated clearly and emphatically the bactericidal property of the quaternary ammonium compounds.

Subsequent to the Domagk's publication the quaternaries made their appearance in this country as bactericides. In 1941 Baker, Harrison and Miller (3) reported their studies of the effects of a large series of anionic and cationic detergents on the metabolism of bacteria. Their report contains the following generalizations:

- (1) Cationic detergents are equally effective in high dilutions in inhibiting the growth of Gram-positive and Gram-negative bacteria.
- (2) Anionic detergents with but few exceptions selectively inhibit the metabolism of Gram-positive bacteria only.
- (3) Cationic detergents are more effective in the alkaline range of pH while the anionics are

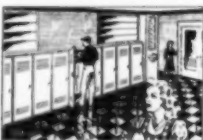
more effective in the acid range; and,

- (4) In studies on the homologous

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straight chain alkyl sulfates and sulfoacetates (C_8 to C_{18}) it was found that maximum inhibition was obtained by the 12, 14, and 16 carbon compounds.

In 1942 Krog and Marshall (4) reported the use of alkyl-dimethylbenzylammonium chloride in a dairy pasteurizing plant. This was the quaternary ammonium compound originally described by Domagk in 1935. Bacteriological sampling was made of the milk processing equipment after being cleansed in the usual manner, but without use of the detergent, and, again, after the detergent was used. Their studies indicated that a 1:6000 dilution (166 p.p.m.) of the germicide caused a reduction of 60 to 98 per cent of the bacteria counts of the milk-handling and processing systems. They concluded from their findings that:

- (1) The compound is definitely bactericidal to the flora associated with dairy processing plants.
- (2) It is no more corrosive to metal and rubber than ordinary water.
- (3) It imparts no taste or odor to milk products.
- (4) It can be used with safety due to its low toxicity.

The report of Krog and Marshall helped demonstrate the applicability of the quaternary ammonium compounds in the dairy industry. Thereafter, these materials began to be used by a greater number of milk and food handlers. At the present time, as a result of the spectacular way in which the quaternaries reduce the thermophilic bacteria count of milk, the dairy industry as a whole is quite conscious of these new bactericides and appears ready to use them as part of a standard operational procedure.

THE consideration of "standard operational procedure" is one of the more important reasons why public health authorities have been slow and reluctant in officially accepting the family of quaternaries. As yet, there is no universally accepted minimum concentration level for bactericidal purposes which can be used as a standard. In the case of chlorine compounds, for example, the reference point is fairly easy to establish in terms of only one variable—"available chlorine." The quaternaries, on the other hand, cannot be evaluated on the basis of the atom which identifies them—nitrogen—because this element, by itself, is not responsible for bactericidal action. The nitrogen atom is, in fact, influenced by the size, arrangement, and nature of the groups surrounding it. Consequently, the quaternaries present the problem of what criterion is to be used in order that they may be accurately evaluated.

Another difficulty in the establishment of a "standard operational procedure" is the problem of qualitative and quantitative test for quaternary ammonium compounds. As yet, no simple and rapid method has been developed which

TABLE 1*
Comparison of Bacteria Count before and after Treatment with a Quaternary Ammonium Compound.

Swab Sta. No.	Average colonies for 14 Days per Station		% of Kill
	Control Before Using Quat. Amm. Cpd.	Bacteria Count After Using Quat. Amm. Cpd.	
1	3,200	700	78
2	2,600	1,000	61
3	12,700	900	93
4	26,200	1,500	94
5	9,400	1,100	88
6	37,800	2,000	95
7	2,500	1,000	60
8	8,000	900	88
9	17,600	1,000	99
10	14,200	900	92
11	42,000	700	98
12	100,900	20,900	79
13	18,900	500	97
14	49,300	1,000	99
15	41,100	6,000	85
16	4,100	800	80
17	15,900	300	98
18	56,100	1,200	98

* Key Area Bacteriologic Swabbing Station Identification

Swab No.

1. Upper left hand corner of weigh tank, receiving screen.
2. Screen in weigh tank.
3. Weigh tank gate valve—porcelain edge.
4. Outlet of dump tank.
5. Dead end plate on pipe cap connecting dump tank pump with filter.
6. Dead end on filter outlet—interior of pipe.
7. Outlet valve threads on pasteurizer.
8. Core of outlet valve on pasteurizer.
9. Inside pasteurizer outlet valve.
10. Hole and channel baffle plate of pump, delivering from pasteurizer to cooler.
11. Pump between pasteurizer and cooler—20 teeth on inside gear.
12. Dead end plate cap of spreader on cooler.
13. Cooler coil.
14. Outlet of cooler at bottom trough.
15. Plate of T-joint on bottle filter.
16. Inside channel valve stem of bottle filter.
17. Channel guide hole in filter reservoir.
18. Screen on bottle filter float.

will give a general qualitative or quantitative test for all members of the group. Nor is there any reason to believe any such method can ever be developed. This contention rests on the fact that each quaternary ammonium compound, of the type we are discussing, is a distinct organic chemical, and, therefore, in order to be identified in a positive way, at least, two important steps are required. First, the compound must be isolated in a pure state in order to test it physically and chemically. Second, it must be made to react with group reagents in order to prepare derivatives which will establish its identity. Thus, it seems unlikely that a reagent will ever be found which can perform the dual function of isolation and identification simultaneously on any quaternary ammonium compound.

Of special significance to public health officials is the consideration of toxicity effects of quaternary ammonium compounds. This interest results from the widespread use of these compounds. It has been found that they are used as antiseptics for eyes, (5) as mouth wash, (6) as sedatives, hypnotics, and anaesthetics, (7) as hand soaps and bath salts, as prophylactics for feminine hygiene, antiseptic

toothpaste, shave lotion and shampoo, and body deodorants.

The extensive pharmacological studies which have been made on this group of compounds show, in general, a wide safety factor between bacteriologically effective concentrations and concentrations which are likely to be toxic or irritating. This safety factor is of particular importance in the dairy industry where the marketed products are consumed in enormous quantities.

The introduction and subsequent extensive use of the quaternaries in the dairy industry came soon after their bactericidal action had been established to the satisfaction of American bacteriologists. Thus, (8)

"After the killing power of these new compounds had been proved with the F & DA method, they were evaluated under actual field conditions."

Jamieson and Chan, University of Manitoba, Winnipeg, Can., were among the first to show the effectiveness of cationic wetting agents in the control of bacteria associated with the dairy industry. Forty-quart milk cans were washed in alkaline cleaning solution, dried, and held about 15 hours before taking swabs for

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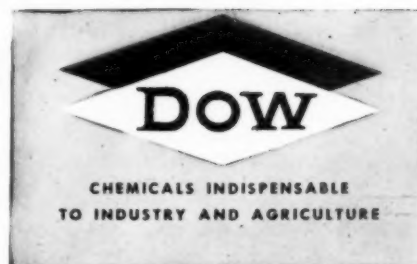
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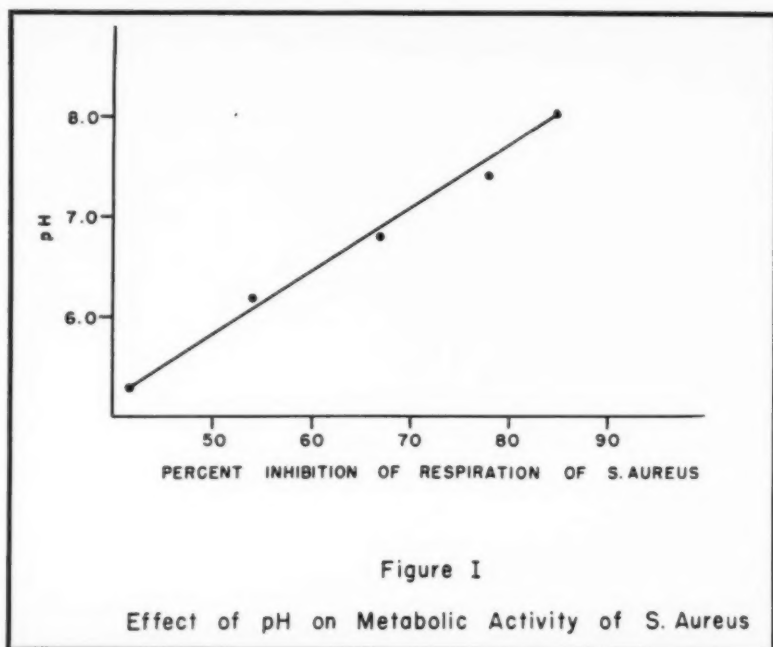


Figure 1

Effect of pH on Metabolic Activity of *S. Aureus*

testing. Fifteen minutes before filling with milk the cans were sprayed with a solution containing 800 p.p.m. quaternary ammonium compound. Immediately after spraying, swab samples were taken. After testing 96 cans over a period of one week, a cationic agent, designated as Sanitizing Agent II reduced the average bacterial count of milk cans from 912,916, to 143 or 99.98 per cent.

In the University of Vermont Experiment Station Bulletin 511, Frayer reported testing a cationic agent on three different species of microorganisms associated with the milk supply. Laboratory data are presented showing 100 per cent kill of *A. aerogenes*, *E. coli*, and *B. subtilis* with a 200 p.p.m. solution of a cationic agent with a contact period of 3 minutes."

These studies however were no more striking than those made previously by Krog and Marshall (9) on milk processing equipment. The significant data of their studies is shown in Table 1.

The spectacular demonstration of the bactericidal effectiveness of the quaternary ammonium compounds created an interest in a detailed study of the factors influencing their activity. Among the more important factors which have been investigated are:

(1) pH—This factor was studied by Baker, Harrison, and Miller by determining the effect of a quaternary ammonium compound on the respiration of several Gram-positive and Gram-negative bacteria. Among other things they concluded that (10) (a) Inhibition by the detergents is a function of pH (b) the cationic detergents show their maximum inhibitory action on the alkaline side (c) the anionic detergents show their maximum inhibitory action on the acid side. Inhibition of respiration is irreversible i.e. after exposure, if the organisms are centrifuged, washed, and resuspended in fresh glucose

buffer solution they do not regain their metabolic activity."

They submit the following data as evidence for their conclusions.

TABLE 2

Micro-organism	Detergent	Conc. of Detergent	5.3	6.2	pH 6.8	7.4	8.0
<i>S. Aureus</i>	"Zephiran"	1:60,000	-42	-54	-67	-78	-85
<i>S. Aureus</i>	"Emulsol-606"	1:30,000	+18	+28	+10	-78	-78
<i>S. Aureus</i>	"Drene"	1:3,000	-98	-43	..	-20	-15
	Sodium						
<i>S. Aureus</i>	Lauryl Sulfate	1:3,000	-90	-14	0	0	0
<i>S. Aureus</i>	"Tergitol-7"	1:30,000	-86	-62	-46	-29	-15
<i>E. Coli</i>	"Zephiran"	1:60,000	-62	-79	..	-86	-76

Minus values represent per cent inhibition; positive values represent per cent activation.

If we plot the results obtained with "Zephiran" on *S. Aureus* as illustrative of

sion measurements are given in dynes per centimeter. The values for water and ethyl

TABLE 3

Exposure Periods (Seconds) Required to Destroy 99.9% of *E. Coli* at 20°C. and 45°C.

Compound	Concentration of Active Ingredient p.p.m.				
	400	200	100	50	25
20°C. (Average of two runs)					
"Roccal"	15	20	>20	>20	>20
"R-2L"	10	>20	>20	>20	>20
"Hyamine 1622"	>20	>20	>20	>20	>20
"Emulsept"	15	>20	>20	>20	>20
"Dalglish"	1	1	3	3	3
"Klenzade X4"	1	1	3	3	3
45°C.					
"Roccal"	5	5	5	>20	>20
"R-2L"	5	10	10	10	10
"Hyamine 1622"	5	20	>20	>20	>20
"Emulsept"	5	10	>20	>20	>20
"Dalglish"	1	1	5	5	5
"Klenzade X4"	1	5	5	5	5

alcohol at 20°C. are given as 72.75 and 22.27 dynes per centimeter respectively.

A compound is regarded as surface-active if its surface tension is of the order of 30 dynes per centimeter. They are referred to in industry as "wetting agents," i.e. their solutions wet greasy surfaces much better than water does; and they are mostly fairly good emulsifying agents for insoluble, non-polar or fatty liquids in water, and dispersing agents for dispersing insoluble solid powders of a hydrophobic or partially hydrophobic character in water." (13)

Strictly speaking, some quaternary ammonium compounds fall into the category of wetting agents. However, their usefulness in this capacity is restricted because they are precipitated if mixed with soaps, or any other "anionic" (i.e. negatively charged) hydrocarbon chain salt, the long chain cations and anions reacting to form an insoluble compound.

Attempts have been made to correlate the surface tension properties of some quaternary ammonium compounds with bactericidal activity.

Rawlins, Sweet, and Joslyn (14) in their study of the "Relationship of Chemical Structure to Germicidal Activity of a Series of Quaternary Ammonium Salts" give tables which list the chemical structure, dilution germicidal at 20°C. in 5 minutes, and surface tension of 0.1 per cent solution at 25°C. in dynes per centimeter. From their data they arrive at the following conclusion: "Only a very limited correlation was found between surface tension and germicidal activity. The values given show that the more effective germicides have, in general, low surface tension. On the other hand, some of the less effective ones are equally surface active."

In dealing with a bacteria-liquid system there is another force which must be taken into consideration — interfacial tension i.e. the force operating at a liquid-solid interface. Apparently, not much attention has been given to this factor by the investigators of surface-active agents. This probably accounts for their inability to correlate germicidal with surface-active agents. Porter (15) has indicated the difficulties encountered in this connection:

"There seems to be some data available in support of the view that surface tension plays a role in certain disinfection processes.

"Here again, however, the assumption must be made that changes in the liquid-air interface are accompanied by a corresponding change in the bacterium-medium interface. As we have stated before, this analogy has very little definite proof. Therefore, the exact interpretation of the effects of changes in surface tension on disinfection processes must await the development of more accurate methods of measuring the interfacial tension between a bacterium and its medium."

GERSHENFELD and Milonick, 1941, have determined the bactericidal properties of surface-tension depressants. They found that reduced surface tension alone does not explain the bactericidal action of a depressant which possesses

germicidal action. Rather the bactericidal action is due to the combination of three factors or agents: (1) the surface-active material, anionic or cationic compound; (2) the H-ion concentration of the environment, acid or alkaline; and (3) the specific organism or group of organisms, Gram-positive or Gram-negative."

(4) Inorganic salts, Adams and Shute (16) have shown that in the absence of inorganic salts the surface tensions of very dilute solutions of quaternary ammonium compounds fall slowly for a week or longer, ultimately reaching very nearly the same tensions as stronger solutions. The presence of salts such as sodium bromide, sodium carbonate and potassium sulfate tends to reduce the surface tension to its final volume almost at once, and these salts, also, tend to reduce the concentration at which the final volume is reached. Apparently the inorganic salts serve the dual role of catalysts for the establishment of surface tension equilibrium, and as surface tension depressants.

It is of interest to note that the anion of the quaternary ammonium salts plays a significant role with regard to surface tension. Hauser and Niles (17) found that (1) the activity increases in the order chloride, bromide and iodide and (2) the surface tension lowering is of the same order of magnitude for salts of the same anion. This suggests the importance of the anion in determining the over-all effect of the salt on the lowering of surface tension.

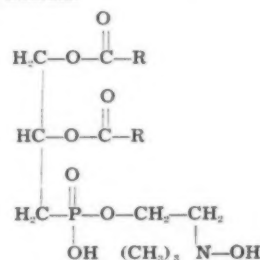
A rather unusual claim has been made (18) for the influence of trisodium phosphate in the presence of a quaternary ammonium compound, namely, that as far as germicidal action is concerned the combination of trisodium phosphate and quaternary is "exceptionally active." In the absence of a logical explanation for the observed effect and because of the lack of supporting evidence from an independent source the claim may be accepted on a tentative basis, or rejected entirely. At any rate, the possible effect of an inorganic radical, which is found in both the free and combined state in living cells, upon the action of a quaternary ammonium compound is indicated.

(5) a. Proteins—The general effect of proteins upon quaternary ammonium compounds is to lower their bactericidal action. The data of Dunn (19) given below are illustrative.

(5) b. Protein Derivatives—Gelatin is the main protein derivative which has received any appreciable attention. Tice

and Pressman (20) report that preliminary experiments gave definite evidence of incompatibility between cationic antiseptics and gelatin but only under conditions where the gelatin was anionic. It was shown that the incompatibility was due to the formation of coacervates (piling up) by negative gelatins and the cationic antiseptics in certain ratios. No coacervates were produced by positive gelatins in any ratio.

(5) c. Fat-like substances — Baker, Harrison and Miller (21) studied the effect of some phospholipids on the activity of the quaternaries. These substances are among the solid constituents of nervous tissue. Their molecules are, in general, composed of three fractions, a fatty acid fraction, a phosphoric acid fraction, and a amine base. The group includes lecithins, cephaline, and sphingomyelin. The lecithins are sometimes spoken of as "phosphorized fats" (21) and their relationship to the fats is indicated by a typical formula:



The investigators found that "lecithin, cephalin, and sphingomyelin prevent the inhibition of bacterial metabolism which is caused by synthetic anionic and cationic detergents."

(5) d. Carbohydrates — very little study has been made of the effect of carbohydrates on quaternary ammonium compounds. Interest has been directed towards the starch group of the polysaccharides. It has been shown (23) that the quaternary, methylphenyldodecyltrimethylammonium methosulfate, precipitates soluble starch producing minimum turbidity at pH14 and pH7. An unusual observation of analytical interest is the inhibition of the formation of a blue color on the reaction of soluble starch with iodine by this particular quaternary.

In a different study (24) it was found that the addition of a quaternary ammonium compound to a corn mash resulted in a higher yield of alcohol by

(Turn to Page 145)

TABLE 4
Germicidal Action of Alkyldimethylbenzyl Ammonium Chlorides in the Absence and Presence of Normal Horse Serum

Organisms	Average Phenol Coefficients			
	In Water		In 20% Serum	
	20°C.	37°C.	20°C.	37°C.
<i>Staphylococcus aureus</i>	279	407	54.2	72
<i>Eberthella typhosa</i>	250	429	23.0	39.8
<i>Escherichia coli</i>	160	358	17.9	31
<i>Streptococcus pyogenes</i>	435	579	63.6	61.5
<i>Cryptococcus hominis</i>	214	395		
<i>Monilia albicans</i>	111	274		
<i>Trichophyton interdigitale</i>		30.4		
<i>Microsporon lanosum</i>		400		

Effect of Drying Methods on

Toxicants in Pyrethrum Flowers

By M. S. Lowman¹, W. A. Gersdorff² and J. W. Kelly¹

U. S. Department of Agriculture,
Agricultural Research Administration

Part II

THE data obtained the following year are difficult to interpret. Since the pyrethrin content of 1.22 percent of the control (lot 21) is substantially higher than that of the treated lots, 22A and 22B, it appears that there was a loss of pyrethrins during the period of storage in the jar or subsequently during the drying, although the flowers were in the jar a much shorter period than in the preceding year. Moreover, the mortality obtained with the extract from the control lot was substantially lower than that obtained with the extracts from the treated lots. This suggests that the extract from the control lot was prepared on the basis of a pyrethrin content higher than was actually present. In view of the probability that an error occurred in the pyrethrin assay of this control lot, all three control lots of the 1946 season were assayed again after a four month interval. In the lot in question the pyrethrin content after four months was 1.05 percent as compared with the 1.22 percent previously found. In the other two control lots (15 and 19), which had been stored under similar conditions the reduction did not exceed .04 percent. This is additional evidence that the original figure on lot 21 was in error. If this assumption is permissible it follows that in both seasons storage of the fresh flowers in the jar and subsequent drying had no important effect on the pyrethrin content of the flowers.

The 18 extracts of flowers in the 1945 season that were prepared on

the basis of one mg. of total pyrethrins per ml. of extract included six made from flowers of control lots. Eight were made from flowers that had not lost appreciable amounts of pyrethrins during the treatments, and four were from flowers that had molded severely while in thin layers on screens with considerable loss of pyrethrins as indicated by chemical assay. The average pyrethrin content of each of the three groups was 1.06, 1.07, and 0.75 percent, respectively. The mortalities with houseflies produced by them averaged 10.5, 11.2, and 5.8 percent, respectively. It is therefore evident that drying the flowers at the several temperatures used up to 175° C. or holding them in thick layers or in sealed jars did not reduce their insecticidal value except in those cases where the flowers molded when slowly dried subsequently in thin layers on screens. This molding in layers on open screens not only caused considerable loss of pyrethrins as shown by assay but apparently caused a reduction in toxicity greater than can be accounted for by the reduction in pyrethrin content.

In 1946, the 10 extracts prepared on the basis of two mg. of total pyrethrins per ml. of extract included three made from flowers of control lots averaging 0.99 percent pyrethrins. One lot (21) was excluded because of the error in assay. Six averaged 0.98 percent pyrethrins from flowers treated in various ways that did not result in any appreciable loss of pyrethrins as indicated by chemical assay, and one was prepared from flowers that molded on the screen with a reduction in pyrethrin content to 0.73 percent. The

mortalities produced by the extracts from control lots averaged 33 percent, and those by extracts from the six treated lots 32 percent. Contrary to the results of the previous year the single extract from flowers that molded on the screen with loss of pyrethrins did not indicate a loss of toxicity beyond that accounted for by the lowered pyrethrin content.

The dried flowers from all the treatments in the three groups differed slightly to considerably in physical appearance from that of flowers from the air dried controls. Flowers that molded previous to or while drying darkened considerably and had a shrunken appearance. If they heated, sweated or fermented in the bulked fresh state but did not mold appreciably they turned brown while drying thereafter. Otherwise their physical condition did not greatly differ from the screen dried controls. Flowers dried at temperatures up to 120° C. were of about the same appearance as those dried slowly on screens. At higher temperatures they acquired a deeper brown color. Extracts of flowers from control and treated lots made with refined kerosene did not differ greatly in color. When placed on white rayon cloth and exposed to diffused sunlight they bleached at about the same rate and to the same degree. In test tubes in the laboratory the extracts from the treated lots bleached somewhat more rapidly than those from the controls.

One year after the first assay the three control and seven treated lots of flowers from the 1946 season were

¹ Tobacco, Medicinal and Special Crops, Bureau of Plant Industry, Soils and Agricultural Engineering.

² Control Investigations, Bureau of Entomology and Plant Quarantine.

again assayed for pyrethrin content. From this data as recorded in table 1 (Page 121, Sept. *Soap*) it appears that the treated lots on the whole did not deteriorate to a greater degree than the control lots.

Conclusions

THE results of the several experiments show that it is an erroneous assumption that the insecticidal value of pyrethrum flowers is significantly reduced if the flowers are dried at temperatures greatly exceeding 60° C. (140° F.). The high temperatures and other severe treatments to which the flowers were subjected in these experiments, on the whole, caused no damage other than to the appearance of the dried flowers.

No important reduction in total pyrethrins resulted when the flowers were dried at temperatures as high as 175° C. (347° F.). When fresh flowers are placed in deep layers or in boxes for several days, and then dried, some damage may result in those portions of the lot where molding occurs. If flowers are spread out thinly and dried slowly with continued molding after such a period they may also be injured. In such cases, the severe molding that sometimes takes place may cause loss of pyrethrins and reduction in toxicity. When the flowers are dried rapidly at 150° C. after several days in bins or boxes there is no important loss of pyrethrins.

The fresh flowers may be packed in sealed containers and held for months like silage in a silo and then dried rapidly without material loss of pyrethrins. The experiments on the whole indicate that the insecticidal value of pyrethrum flowers is not materially reduced if at harvest time the flowers are dried by methods that require less space and fewer facilities than are generally believed necessary. Such methods, however, result in flowers of poorer appearance than those to which the trade has long been accustomed. While such flowers would be entirely suitable for the manufacture of sprays and agricultural dusts, they would not be acceptable for the production of household insect powder which the consumer expects to be of bright yellow color. Moreover, until it

is generally understood by the trade that regardless of appearance pyrethrum flowers handled as described are not inferior in insecticidal value growers would probably find it difficult to dispose of such a product.

Summary

PYRETHRUM flowers were dried or handled prior to drying by various methods that can be utilized practically by growers when considerable quantities of the flowers must be handled during the short harvest time period of their highest insecticidal value. When the flowers were dried at temperatures up to 175° C. (347° F.) or stored and held in boxes or in sealed jars and then dried rapidly, no loss of pyrethrins was demonstrated by chemical determination and tests on house flies. Moderate molding of the flowers in closed containers or in thick layers previous to drying did not cause loss of toxicants. However, serious losses did occur when the flowers molded while drying in thin layers on screens. Flowers dried at temperatures up to 120° C. were of about the same ap-

pearance as those dried slowly on screens but higher temperatures caused a darker color. Those held for varying periods in the fresh state were somewhat browner in color after drying. Flowers that molded either before or while drying were dark and abnormal in appearance. Flowers of abnormal color would no doubt be objectionable for the manufacture of household "insect powder" but not the preparation of agricultural dusts and sprays.

Fulton Joins MM&R

Dr. R. R. Fulton, formerly associated with the new products development section of Armour & Co., Chicago, recently was appointed food technologist of Magnus, Mabee & Reynard, Inc., New York. Dr. Fulton will travel extensively in his new capacity making direct contact in the field. He is a member of the American Chemical Society, Institute of Food Technologists, Society of Illinois Bacteriologists, the Quartermaster Association and the Chicago Nutrition Association.

Label Warning . . .



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GELLING

of Self-polishing

EMULSION WAXES

By Alfred A. Kroner, Kroner Laboratories, Inc.

IN THE new proposed Federal Specification for Floor Wax P.W.-151B we find the following paragraph about stability: "It (the floor wax) shall be a stable aqueous colloidal emulsion of waxes. The emulsion shall be a free-flowing fluid that can be readily applied with an applicator . . ."

Gelling of emulsions is an unpleasant experience dreaded by all manufacturers of liquid wax polishes. The gelling does not start as soon as the liquid has been filled into cans or bottles. It is a gradual transition from sol to gel which may be completed after the merchandise has stood on a shelf for many months.

When a manufacturer receives complaints of this kind he wonders why some of the batches made up from the same formula remain liquid after long storage while others become viscous and jelly.

Depending on special conditions, the gelation can be caused by a number of different factors such as chemical hydrolysis, oxidation polymerization, decomposition, catalytic reaction or an attack by microorganisms.

There does not exist a simple rule whereby materials causing gelation can be excluded in advance when a new wax emulsion formula is being worked out. The variety of the ingredients used as well as their often unknown composition demands practical tests either by putting the emulsion on the shelf under normal conditions for observation for several

months or by using the so called oven test in order to speed up results.

The method for this test has been described in the floor wax specifications adopted by the N.A.I.D.M. as follows: Measure viscosity of original sample at 25°C. (77°F.) using Ostwald type pipette viscosimeter. Pour 100 ml of the original sample into a four oz. bottle of approximately 35m/m in side diameter. Close bottle securely with a clean cork and allow it to stand undisturbed in an upright position at 52°C. (125°F.) for 168 hours (seven days). At the end of this time cool to room temperature, measure viscosity and observe any creamy separation or gelling.

This test was formulated some years ago. Today we know that the minimum testing period should be two weeks corresponding to an actual storage life of about six months while a 30 day period corresponds to a storage time of one year, etc. This speedy test is a great help, but one should not overestimate its accuracy since actual storage conditions with rising and falling temperatures are different from the continuous temperature level of 125°F. of the oven test.

IN his paper titled, "Carnauba Wax —Adulterated?" (1), Bowers explains the gelling of carnauba wax emulsions with some adulteration of carnauba wax observed since 1942. Bowers found that the gelling was caused by carnauba wax having a flash point below 572°F. After his company stopped purchasing carnauba wax with a flash point below 572°F. no further

difficulty with tackiness or low shelf life was encountered.

The low flashing ingredients of carnauba wax are only one of the many factors which are liable to shorten the life of a wax emulsion. It is very true that carnauba wax, even of the same grade, varies in its composition as a product of nature, for obvious reasons. But the same can be said for other waxes, resins, etc., which are being used in the average no-rubbing wax formula.

The number of emulsions on the market prepared with carnauba wax exclusively is very small in comparison with the cheaper products in which carnauba is replaced by such waxes as candellila, ouricury, oxidized microcrystalline waxes or the so called replacement waxes. These latter substitutes, normally offered under a trade name, are sometimes excellent products, but their composition is secret.

It is almost standard practice to add approximately a 10 per cent shellac solution to the pure wax emulsion. To replace expensive shellac such products as manila gum, casein, modified Congo or synthetic resins are used.

All these substitutes with properties somewhat different from the original raw materials, and very often unknown in their composition, are liable to develop gelling if they are not investigated carefully to determine whether they agree generally or in limited percentage with the other ingredients of the emulsion formula.

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so easy to throw these self polishing wax emulsions out of balance it must be realized that this emulsion is not produced by saponification but by peptization. A peptization is the process of bringing a solid (the wax mixture) into a colloidal solution. (2) This is not a true solution; the wax is not dissolved but absorbed by the water (3). The purpose of this peptization is to obtain a transparent or opaque water solution of the wax which dries to a glossy film on linoleum or other surfaces without rubbing. Little alkali is used in this operation, just enough to bring the wax into a colloidal dispersion. Usually the wax emulsions are weakly alkaline, with a pH number ranging from seven to nine. If in the beginning of the emulsification the water is not incorporated gradually and thoroughly with the liquid wax mixture, an emulsion will result which is neither transparent nor opaque but milky. This milky emulsion will dry to a dull film which has to be polished.

Another important consideration is the fact that any chemical, especially a liquid mixture which stands on the shelf for many months, will change by aging. Other influences such as heat, light, oxygen, or the container itself might affect the product after a certain time.

All these factors have been mentioned to explain the conditions under which the stability of an emulsion can be affected. This list will be enlarged later on in this article. But in spite of all these difficulties most of the floor wax emulsions on the market show a stability sufficient for practical requirements.

The following floor wax emulsion was developed during the war as a substitute for a formula using carnauba wax and shellac only.

For a year and a half the author was able to follow up production of this formula. During this period about a million gallons were manufactured, filled in bottles and cans and sold without a single complaint from gelling.

Solution No. 1

Carnauba N.C. No. 3 refined	45
Candellila refined	10

Paraffin wax 125°F.	8
Soap flakes	5
Oleic acid	10
Triethanolamine	5
Borax	3
Water	414
	500 500

Solution No. 2

Casein	15
Triethanolamine	3
Borax	2
Water	180
	200 200

Solution No. 3

Shellac bleached	10
Borax	1
Triethanolamine	2
Water	187
	200 200
+ Add water	100 100
Total	1000

Before this formula was selected a number of tests were conducted to find out whether candellila wax would speed up gelling. If the percentage of candellila used in the wax composition were less than 25 per cent the emulsion remained stable for at least six months provided triethanolamine and borax were used as emulsifiers.

Most favored emulsifiers such as ammonia, triethanolamine, morpholine, 2 amino- 2 methyl-1-propanol contain the amine group as the effective emulgent. The choice of these emulsifiers usually depends on their capacity for making the wax film more or less water resistant. Ammonia should be used with great caution since it has a tendency to increase the viscosity of the emulsion.

The paraffin wax used in this formula for increasing the water resistance of the wax film had no gelling effect.

The use of casein in connection with shellac was risky. If a casein solution and a shellac solution are mixed they will produce a gel as soon as they come in contact with each other. Limited to a small amount and dispersed in the wax solution before the shellac solution was finally added, casein did not disturb the liquid phase of the emulsion.

Viscosity and stability of a casein solution differ completely from the emulsifier, concentration and pH number 4. On the other hand, the viscosity of a casein solution decreases with aging, even if properly protected by a preservative.

The same emulsifiers which had been suitable for the wax and the casein solution were used in preparing the shellac solution.

The formula which has been discussed is a typical floor wax emulsion. In testing new formulas it does not make any difference whether candellila, paraffin wax and casein have been employed or other such substitutes as the oxidized microcrystalline waxes or replacement waxes, gums or synthetic resins are incorporated. Any new combination of different ingredients or different percentages will change the final product in its properties of gloss, water resistance, tackiness and stability.

Beside waxes, resins and emulsifiers, there are other factors which can produce the gelling of an emulsion.

THE water which is used in the manufacturing process should be tested for the following reason. Any water, with the exception of distilled water, will contain microorganisms whose attack on the other ingredients has to be checked by a preservative. (In an emulsion containing casein, excessive amounts of formaldehyde could speed up gelling.) In cities where drinking water is used for manufacturing, hardness and organic matter are controlled by the health authorities. Nevertheless the pipe system branching off from the water main often carries plenty of rust. It is advisable to remove this iron oxide by filtration as it might have an undesirable catalytic effect on the emulsion.

While floor wax emulsions do not contain any dyestuffs, bright drying liquid shoe polishes, which are wax emulsions of the same type as discussed, are colored in different shades with aniline dyestuffs. Some of these dyes have a gelling effect on wax emulsions even if applied in small percentages. Since not all dyes are 100 per cent organic—some being cut with salts like sodium sulfate—tests have to be made so as to determine whether the dye itself or the cutting salt is causing gelation. The same gelling effect caused by dyestuffs has been observed in the textile printing industry where aniline

(Turn to Page 145)

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More on Soap Dispensers

Concluding two previous articles on the subject,
this one describes models not covered earlier.

By E. G. Thomssen

Part III

VARIOUS makes of soap dispensers for paste, solid bar, powdered and liquid forms of soap were discussed in the June and July, 1949 issues of *Soap & Sanitary Chemicals*. Since publication of the articles describing soap dispensers, more information regarding models not specifically covered has been brought to our attention.

The new industrial dispenser made by Presto Manufacturing Co., St. Paul, Minn., and illustrated in the June article has certain qualifications of interest in a mechanism designed to hold and dispense fairly large quantities of soap, thus eliminating the need for frequent refilling. Of full gallon capacity, the Presto dispenser is attractive in appearance. In a dispenser of this capacity, it is necessary to have a strong fixture to fasten the device to an upright surface. The dispenser has a two-piece bracket, one section of which is attached to a wall, the other, permanently fixed to the dispenser, fastens to the wall bracket by means of a series of bolts that can be inserted in a row of holes along the sides of the bracket. Presto reports a good reception for the new dispenser.

For liquid soap, a dispenser that is experiencing a favorable reaction is the new "No. 66 Streamliner" of Rochester Germicide Co., Rochester, N. Y. Designed to blend with other modern lavatory equipment, the "Streamliner" is also built for long service, even under strenuous conditions of operation. It is built of rust-proof metals and is triple plated with copper, nickel and chromium. Easy to install,

the dispenser has a 10-ounce, clear glass reservoir that shows the soap level at all times. The plunger valve is one that has been tested over the years, according to the maker. Parts of the dispenser are easily removed for cleaning and maintenance and do not require special tools for removal. Rochester Germicide Co. also produces liquid and powdered soaps for their own and other makes of soap dispensers.

Another important factor in the dispenser industry is Clifton Chemical Co., New York. The firm features both liquid and powder dispensers in several styles. The Clifton line includes the "Moderne," a liquid soap dispensing unit. The "Duodek" and "Tiltype" dispensers are two of the more widely distributed Clifton models. The former is a sturdy mechanism that features easy dismantling for replacement of parts or cleaning. It is the company's best selling number. The soap reservoir of the "Duodek" is a 12-sided glass bowl that is supported by a chromium plated metal bracket. It is fitted with a gravity type dispensing valve. Extra glass bowls are available. Because of the many corners, the glass bowl of the "Duodek" is easy to grip.

For dispensing either liquid or powdered soaps, Clifton offers the "Tiltype" unit. It operates by gravity when the spherical glass bowl is tipped forward and down from its normal position with the spout upright. Because of this principle of operation, there is no mechanism to go out of order. All metal parts of the "Tiltype" dispenser are corrosion proof. This dis-

penser is easy to fill. Clifton Chemical Co. also manufactures various grades of soaps that may be used in their dispensers.

A complete line of soap dispensers, including gravity systems, is handled by Ampion Corp., Long Island City, N. Y. The firm's gravity systems comprise white enamel and vitreous china tanks, cam action, positive bleeding "Michrome" valve and a Pullman type valve to fit a 1 1/4 inch opening in any sink. A complete line of fittings to install a soap dispensing system is carried in stock by Ampion.

Individual dispensers of Ampion include the "Lathermaster," "Sopurnia" and "Moderna." The "Lathermaster," made entirely of chromium plated metal is six inches in diameter, holds 30 fluid ounces. It is a lather type dispenser. All fastenings for it are of the concealed type.

The "Sopurnia" dispenser is equipped with a 16-ounce, opalescent globe, supported by a non-corrosive, white metal bracket. The mechanism is made from nickel silver. The unit weighs 28 ounces and is designed to take considerable rough handling. A hook shaped "Sopurnia" is also available for attaching directly on a sink. Its height above the flange is 4 1/2 inches and its shank is four inches long.

Ampion's "Moderna" liquid dispenser is made from "Zamak" alloy and is chromium plated. The dispenser is attractively styled, durable and moderately priced.

A tilt type dispenser and a
(Turn to Page 147)

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NPCA Meets in Los Angeles

THE following program has been announced by William O. Buettner, executive secretary of the National Pest Control Association for its 17th annual convention at the Biltmore Hotel, Los Angeles, Monday, Tuesday, and Wednesday, Oct. 17-19.

MONDAY MORNING—OCT. 17—BALLROOM

- 9:00 A.M.—Meeting called to order—Robert B. Mesecher
President's Annual Message—V. H. Montgomery
"History of Pest Control for Past Fifty Years"—Prof. J. J. Davis
"Pest Control of the Present Day"—C. Norman Dold
"What We May Expect in Pest Control in the Next Fifty Years"—Lee C. Truman
"What the Agricultural Experiment Stations Have To Offer the PCO"—Dr. Al. M. Boyce
Closed Business Session (NPCA Members only)—V. H. Montgomery, presiding.

12:15 P.M.—Luncheon—Biltmore Bowl GROUP "A"—BALLROOM

(Wood Destroying Organisms — Emphasis on Subterranean Termites.)
Harold J. Davies, Presiding

- 2:00 P.M.—Termite Committee Report (Outline of work accomplished)—George L. Hockenyos
3:00 P.M.—Open Forum
3:30 P.M.—Subterranean Termite Treating Methods and Business Technique of Southern California.

A panel of four who will discuss the following:

1. "Importance of a Written Report" — George Taubert; 2. "Seal-Offs"—Ralph Oliver; 3. "Below-Grade Foundation and Ventilation Factors"—Joseph A. Goulding; 4. "Chemicals"—Wayne K. Davis.

GROUP "B"—CONFERENCE ROOM 1 (General Pest Control)

- Basil Gough, Presiding
2:00 P.M.—"How To Make a Rat Control Survey"—V. H. Montgomery
2:15 P.M.—"California State Position Regarding Rodent Control"—Howard B. Hollander
2:30 P.M.—"Rodenticides" (How to use, toxicity, results)—Edward W. Bushing
3:00 P.M.—"Ant Control"—Dr. E. Gorton Linsley
3:45 P.M.—"New Insecticides" (Trends and Future Aspects)—Dr. Ralph L. Metcalf

MONDAY EVENING

- 9:00 P.M.—Informal Get-together in Ballroom

TUESDAY MORNING—OCT. 18—BALLROOM

- 9:00 A.M.—J. Wilfred Gunn, Presiding
General Assembly of Groups "A" and "B"
"Fumigation, including Drywood Termite Fumigation"—Karl Hassler
10:00 A.M.—"What Happens When a Termite Inspector Misses a Stall

Shower"—William Thomas
Groups "A" (Wood Destroying Organisms) and "B" (General Pest Control) will meet separately:

GROUP "A"—BALLROOM

- 10:15 A.M.—Motion Picture followed by discussion

- 11:00 A.M.—Business Mechanics Section of NPCA Termite Committee—W. H. McCain

GROUP "B"—CONFERENCE ROOM 1

- 10:15 A.M.—An Open Forum to discuss moths, carpet beetles, laws and enforcement, roaches, silverfish, stored products insects.
Panel: Dr. E. O. Essig, Dr. W. Dwight Pierce, Charles Senn, H. K. Steckel, W. E. McCauley, Prof. J. J. Davis, I. B. Carncross, Herman L. Felton and J. F. Graham.

TUESDAY EVENING

BALLROOM

- 8:00 P.M.—Featured Entertainment

WEDNESDAY MORNING—OCT. 19—BALLROOM

- 9:00 A.M.—General Assembly of Groups "A" and "B"
"Important Factors in the Control of House Mice"—Walter W. Dykstra

- 9:30 A.M.—"The Overall Insecticide Situation"—Dr. S. A. Rohwer

- 10:15 A.M.—NPCA Business Meeting—V. H. Montgomery, Presiding

- 12:30 P.M.—Luncheon—Biltmore Bowl Groups "A" (Wood Destroying Organisms) and "B" (General Pest Control) will meet separately:

GROUP "A"—BALLROOM

- 2:00 P.M.—Minimum Code of Los Angeles District, Pest Control Operators of California, Inc., History and Application—Herbert Packard, Jr.
Open Forum

- 3:00 P.M.—Legislation — Comments Relative to Present Day Termite Legislation in Seven States. Florida and Louisiana—Theodore Oser; Alabama and Arkansas—A. S. Krawcheck; Mississippi—J. C. Redd; Tennessee—Walter B. Hill; California—J. Wilfred Gunn.

- 4:00 P.M.—"Highlights in Termite Control"—Dr. Thomas E. Snyder

GROUP "B"—CONFERENCE ROOM 1 (General Pest Control)

- Charles C. Delk, Presiding
2:00 P.M.—"Identification of General Pests Made Easy"—Ron W. Hunt
Open Forum

- 2:30 P.M.—"Methods and Gadgets To Make Pest Control Work Easier"—Martin T. Meyer
Open Forum

- 3:00 P.M.—"Fly Control"—Dr. R. B. March
Open Forum

WEDNESDAY EVENING

BILTMORE HOTEL

- 7:00 P.M.—Annual Banquet.

Rising Joins Eastern Chem.

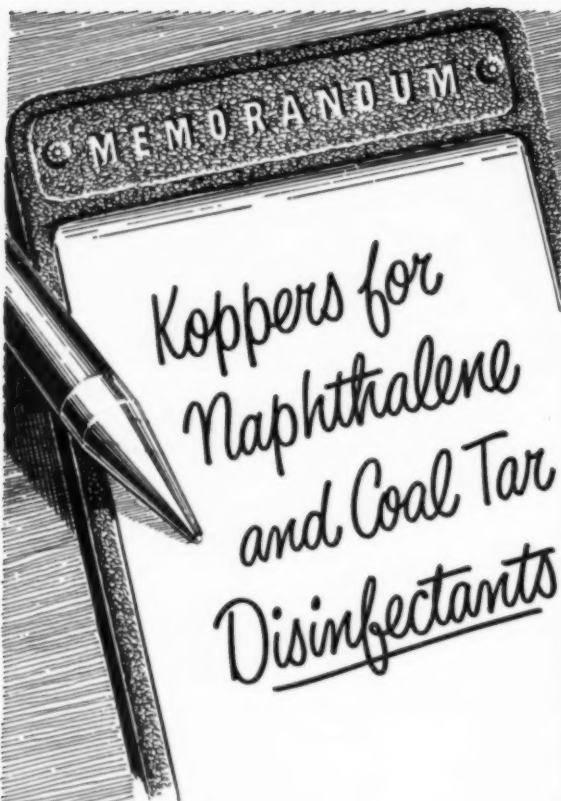
Guy J. Rising, formerly sales manager of the industrial chemical

division of Hercules Powder Co., joined Eastern Chemicals, Inc., Albany, N. Y., as general sales manager on October 1, according to an announcement by James R. Nolan, president of Eastern. The company is also taking over the sales of certain Hercules products in the East. William J. Martin, formerly with the Philadelphia Quartz Co., will join Eastern Chemicals on Nov. 1 as resident manager of the Holyoke, Mass., branch.

Eastern Chemicals, Inc., completes five years in business on Nov. 1, the firm having been bought from Hercules Powder Papermakers' Chemical Division. Head office and plant is located at South St. and Columbia Turnpike, Rensselaer, N. Y. The company has a branch in Syracuse in charge of W. M. Williams, and one in Holyoke, Mass. It employs 40 persons and represents a number of prominent chemical manufacturers in its territory including Hercules, Du Pont, Monsanto, Philadelphia Quartz, Solvay, U. S. Industrial Chemicals, Hooker, Barrett, Cyanamid, Archer-Daniels-Midland, and others. The officers in addition to Mr. Nolan include Henry C. Dorr, vice-president and treasurer, and Thomas F. McDermott, secretary and counsel.

New McCormick Book

A new book entitled "The Power of People," by Charles P. McCormick, chairman of the board of McCormick & Co., Baltimore, and chairman of the Federal Reserve Bank of Richmond, has been published by Harper & Brothers. The new volume is partly a supplement to Mr. McCormick's original work, "Multiple Management," as indicated in the sub-title, "Multiple Management Up to Date." In fact, the book is a report on the practical operation of multiple-management with observations and suggestions by the author covering experience of the past twelve years, the period since his original work outlined the initial five-year period. The foreword is by Eric A. Johnston. By-laws of various boards, duties of boards and committees, practical instructions for employe rating with sample form, and other features of multiple management



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Lactic acid is an efficient, cheap, and readily available aerial bactericide. Bactericidal action reaches its peak between 60 and 85 per cent relative humidity at an acid concentration of a little over 200 gamma per cubic foot. The lactic acid is put into the air by steam distillation to avoid decomposition. O. M. Lidwell, J. E. Lovelock, and W. F. Raymond, *Med. Research Council* (London) Special Rept. Ser. No. 262, 82-7; through *Chem. Abs.*

Behavior of Disinfectants

The vapors of most commonly used aerial disinfectants disappear from the air at an appreciable rate by one or more of a number of processes which include aerial oxidation, condensation on surfaces, adsorption by surfaces, etc. The disappearance of the vapors from the air approximated a logarithmic law over a range of concentrations. Decay rates are calculated for several substances under varied conditions. O. M. Lidwell and J. E. Lovelock, *Med. Research Council* (London), Special Rept. Ser. No. 262, 122-30; through *Chem. Abs.*

GELLING OF WAXES

(From Page 139)

dyestuffs are dispersed in viscous gum solution.

It seems to be self evident that a tight closure of the container is necessary to assure stability of the product. Otherwise evaporation of water and penetrating oxygen from the air will hasten the gelling process. This is especially true for industries using porous corks as bottle closures.

The manufacturer of emulsions cannot prevent gelling or precipitation if his goods are not properly handled or carelessly exposed to excessive heat or cold.

But in thoroughly working out his formulas with the methods explained in this article, by checking his supplies of raw materials in the labora-

tory and maintaining a careful and uniform manufacturing procedure he should be able to reduce complaints to a minimum, if not to avoid them entirely.

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Air Disinfection

One volume of hypochloric acid in 2,000,000 volumes of air is found to be satisfactory for disinfection. No large difference in the rate of kill of bacteria in air is observed on varying the concentration of the hypochlorite solution, sprayed, provided the total amount of hypochloric acid is the same. The source of the hypochlorite has no effect on the results. It is not advisable to use solutions of more than two per cent bleaching powder (35 per cent available chlorine) or one per cent sodium hypochlorite, since excessive losses due to chlorate formation occur. O. M. Lidwell and J. E. Lovelock, *Med. Research Council* (London), Special Rept. Ser. No. 262, 68-75.

QUATERNARIES

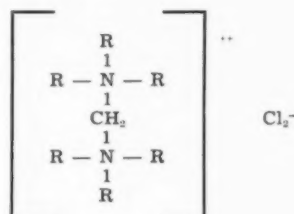
(From Page 134)

yeast fermentation. Analyses of the quaternary-treated mashies showed the presence of fewer bacteria, slightly higher pH levels, and increased enzymatic activity. It is the latter effects which may account for the higher alcohol yield, thus, indicating an indirect influence by the quaternary.

(6) Electrical Charge—In the paper of Baker, Harrison and Miller which has already been cited the authors refer to the charge on the ion containing the hydrophobic group as one factor which influences the action of synthetic detergents on bacterial metabolism. In the case of the anionics there is little, if any, bactericidal action while in the case of the cationics the bactericidal action is quite marked. In their own words, "It is tempting for the sake of simplicity to consider the effectiveness of the cationic compounds in terms of the positive charge on the ion which contains the long chain hydrophobic group. It is a well established fact that most bacteria are negatively charged

and one might suppose that the long chain positive ion is more effective because its opposite electrical charge facilitates absorption." The suggestion presupposes that bacteria are destroyed by a mechanism in which oppositely charged bodies are drawn together by electrical forces. As we shall note below this may not be the mechanism which actually occurs.

Regardless, it may be of interest, in addition, to possibly proving or disproving the theory, to study the bactericidal action of quaternary ammonium compounds containing more than one positive charge per molecule. The general formula for one type of a positively doubly charged salt would be:



(7) Molecular Configuration — In still another reference to the paper of Rawlins, Sweet and Joslyn titled, "Relationship of Chemical Structure to Germicidal Activity of a Series of Quaternary Ammonium Salts," the following pertinent summary is given: "—the general configuration of the molecule of the quaternary ammonium salt is as important as the exact chemical nature of its substituents.

1. The cation should preferably contain one long alkyl or alkylarpoly- (oxyalkyl) chain (possibly alkylaralkyl would do just as well), one short aralkyl group and two lower alkyl groups.

2. The total length of the long chain should be 12-16 atoms. In approximating the chain length benzene rings were counted as 4 atoms. Any appreciable increase or decrease seriously interferes with germicidal activity.

3. Closed ring substituents on the aromatic nucleus are definitely inferior to alkyl groups in enhancing germicidal activity.

4. Halogen substitution in the aryl groups does not increase germicidal activity and may actually decrease it.

5. The anion may be derived from any simple mineral or organic acid."

(To be concluded)

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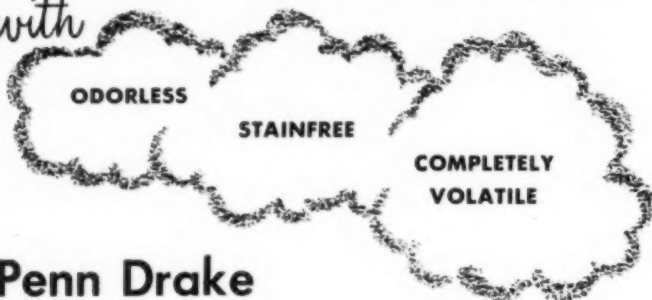
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SOAP DISPENSERS

(From Page 141)

springless, stationary liquid dispenser that has but one moving part, round out Ampion's dispenser line.

The increasing variety and improved types of soap dispensers now being marketed indicate that the industry is attempting to meet every demand for these appliances.

EMPLOYEE RELATIONS

(From Page 40)

gether.' That brief definition has a

lot in it. In the years ahead, how far we of Lever Brothers will go depends greatly on how well all of us cooperate in the spirit of 'togetherness.' I have stressed this idea before and will do so again. People working together harmoniously and intelligently for a common purpose cannot fail to make progress."

This spirit has also motivated the union-management relations. Perhaps the following episode will serve to illustrate how hard and seriously the management works to maintain harmony.

Last winter, after several weeks of contract negotiations with labor leaders, agreements were signed. But not before there were many nerve-exhausting hours of patient discussion and explanation of management's position on economic issues, which reflected the economic conditions of the country and the competitive position of the company.

It was late at night and it would have been easy for the management committee to break up for some badly needed rest. Instead, it met alone for several hours to analyze the negotiations. The committee put under fire not only the views advanced by the union heads but also their own. They were concerned with what could be done on the basis of the negotiations, to improve already good labor relations. From this night session evolved a program now in force.

For example, joint meetings were held with both members of supervision and shop stewards at the various plants for the purpose of explaining the contractual provisions. This was done to eliminate possible misunderstandings that separate meetings might cause. Underway, too, as a result of the night meeting is an accelerated program of communications to bring to employees more information about the company and current economic conditions as they affect the business.

Lever has been in the vanguard of industry in providing liberal social benefits for its employees. In these times, this proves a wise investment.

Added to good wages and sal-

aries, the company extends to employees free life insurance protection, with an opportunity to buy additional group life insurance at low cost; participation in a free sickness and accident benefit plan; enrollment in a pension plan with the firm paying the entire cost; membership in a company-paid group hospital insurance plan; and paid vacations and holidays.

There is no better way of showing genuine regard for employees than through demonstrating concern about their health. Fair wages, good working conditions, benefits that protect them in the event of sickness or disabling accident, retirement or death, all combine to build a cooperative group. By maintaining medical clinics in Lever House and at every plant, the company provides professional care at no cost to the employee. A full-time medical director supervises this activity. The clinics are staffed by doctors.

Each Lever plant and the headquarters in Cambridge has an attractive cafeteria where employees may eat well prepared food at low cost because the company absorbs all operating costs. In the plants, production workers have paid lunch and rest periods, during which time the cafeteria becomes a meeting as well as eating place.

Every month an employee may purchase at cost a special box which contains a supply of Lever soap and shortening products for an average family. This practice was begun during the war when soap shortages imposed hardships on employees and has continued as a worthwhile service reflecting a thoughtful management. Incidentally, the employees were polled to select the contents of the box.

To those who have been with the company for a long time, service awards are presented. These awards are tangible recognition of the company's appreciation of their loyalty and efforts. After 25 years of service, the employee receives a diamond-studded Lever Service Pin and a special gift in the form of a government savings bond for a substantial sum. Those who attain 15 years of service are awarded a gold watch.



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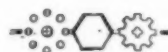
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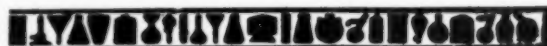
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This has been a quick run-over of the Lever employee relations program. Beyond showing specific techniques, it also demonstrates a good attitude, which is essential in promoting good teamwork.

Only recently as a result of the realization that the company has doubled its volume of soap and edible business in recent years, and has diversified its operations by acquiring important subsidiaries, new plans for a personnel administration program were announced.

Designed to meet the needs of the rapidly growing business and to assure maximum opportunities for all, the program will enable the company to move into high gear on a \$55,000,000 nationwide expansion project, including the construction of a \$25,000,000 plant in Los Angeles.

However satisfactory and rewarding employee relations at Lever Brothers have been in the past, the demands of the spreading business will be strengthened in this program by a prime guiding principle of Lever: regard for the individual who is essential to company success. This consideration of employees is manifested in many ways.

Mr. Luckman is insistent that the new personnel program retain the exacting elements of sound human relations. The "human touch" which demonstrates an appreciation of basic desires of the employees—production worker, stenographer or manager—is retained and emphasized within the framework of the program.

He has fostered "togetherness"—the sense of belonging within the widespread Lever organization. This has been bolstered with his statement of policy:

"We must do the right kind of job as far as hiring, promoting and transferring are concerned," he asserts. "I want it to be the policy that good people in our company, regardless of department, have an opportunity any place in the company, provided their capacities and abilities warrant it. The most important asset of our company is the people in it, and the greatest opportunity and challenge for the future of our company is the

further developing of human resources."

This article has attempted to highlight and give glimpses of Lever's employee relations program. It spells out in general terms what the company aims at and works toward doing for Lever people. There is no sure way of measuring the success it has achieved in doing so. It is highly significant, however, that more than 20 per cent of the present employees have been with the company 15 years or more. People don't stay with a business organization without cogent, practical reasons. And when they do stay, work hard and prosper, isn't this good employee relations?

POWDER PACKAGING

(From Page 127)

dealers as well as to the largest companies. Weigh Right's equipment handles all dry filling operations for any type of container. The line includes at least five fillers of interest. Model A handles a wide range of powders from very fine grind to coarse granules. It meters the flow in equal volumes at regular intervals, operates at any set speed suited to the production capacity up to 35 per minute. It delivers any volume weight from a few milligrams to 10 oz., is readily and quickly adjusted while in operation and is simple to run. The Model A-1 filler is a compact, low cost, quiet running, easily adjustable and cleaned packer. Its normal capacity is from very small quantities up to 10 oz. at a filling speed of from 10 to 70 per minute. No additional parts are needed for various sizes. It handles any type of powdered or granular materials. Weigh Right offers a Model SA auger packer for either loose packing or tight filling in any type small container up to 10 oz. in weight. Its speed for filling is 10 to 60 per minute with a 1/16 to 1/8 oz. accuracy tolerance. Optional units for special jobs or fully automatic performance are also available. The Model PM automatic net weigher handles eight oz. to three lbs., fills on free running materials at the rate of 90 to 110 per minute with weight accuracy from 0 to 1/16 oz. Smaller units of lower

speeds are also available. These machines are sturdily built and easily maintained. A new type cleanser-powder filler that operates through an enclosed turret at 50 per minute without raising any dust was developed recently by Weigh Right. The machine is known as Model B-1.

In discussing dry filling, we will mention some of the manufacturers of machinery and equipment for filling larger weight bags, barrels and drums. Among the leaders in this field are St. Regis Sales Corp., New York; S. Howes Scales Co., Silver Creek, N. Y.; Toledo Scale Co., Toledo, O.; Richardson Scale Co., Clifton, N. J.; W. R. Witte & Co., Elizabeth, N. J.; Syntron Co., Homer City, Pa., and Exact Weight Scale Co., Columbus, O. Certain bag manufacturers also provide bag fillers with their special closure type bags or sacks.

With the large array of fillers on the market, there is an ample supply from which to choose good equipment for filling dry materials into any type package. Speed of filling, weight and other details may be selected to suit individual conditions.

In conveying powders, consideration must be given to cleaning operations. Where two or more powders are handled by the same filler, cleaning is essential to avoid contamination. Additional labor, of course, is consumed in the cleaning operation. These factors should be borne in mind in the selection of conveyors, if they are used.

In smaller plants, particularly, one finds very often that the filler is being charged with a shovel or scoop. Such methods are slow, dusty and expensive. Frequently the powder filling machine hopper is six or more feet above the floor. If the hopper feed were at floor level or slightly above the floor hand feeding would be facilitated. Certain makes of dry material mixers are designed in this way.

SPECIALTY SOAPS

(From Page 35)

Among agents suitable for incorporation into ordinary soap are certain quaternary phosphonium bases, such as triphenyldichlorobenzylphosphoni-

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um chloride. Also suitable were selenium compounds such as selenic acid and sodium selenite, and fluorides such as potassium bifluoride and potassium silicofluorides.

The idea of incorporating insecticides into soaps has occurred to workers in other parts of the world. In a Russian patent (31) methods were given for making insecticidal soaps by adding coal-tar oils meeting certain specifications, while a Japanese patent (32) called for the use of sodium polysulfides. In England, Woodman (33) gave formulas for making moderately stable soaps containing insecticidal and ovicidal oils. These soaps yielded oil-in-water emulsions when soaked in water, but it was felt that their toxic oil content was probably insufficient for general use.

Arsenical Soaps

BEFORE proceeding further, mention should be made of a very special type of soap used by taxidermists and sportsmen for preserving skins or other trophies from the effects of insects, fungi and other harmful influences. Highly toxic, they are commonly known as arsenical soaps and are usually provided as pastes. According to one reference source, (22) a typical soap of this kind may be made from:

White arsenic	2 lb.
Soft soap	2 lb.
Prepared chalk	4 oz.
Camphor	5 oz.
Alcohol, denatured	8 oz.

Another type of soap, based on the action of mercuric chloride, may be used for preserving skins in taxidermy. An illustrative product (22) is made from:

Mercuric chloride	1 dr.
Alcohol (90%)	1 oz.
Soap	4 oz.

Automobile Soaps

AUTOMOBILE soaps form a rather important group of special products. As noted in a recent editorial (34) in *Soap and Sanitary Chemicals*, the old fashioned hard green automobile soap seems to have disappeared from the scene. Its place was taken by more suitable and more efficient soft soaps. Although the po-

sition of such automobile soaps is being threatened by synthetic detergents, they still loom important in the auto-washing picture. As noted by Thomssen and Kemp (35), the soft potash soaps leave a clear, bright surface when used for washing a car. The following soap, made by the semi-boiled process, yields a good auto soap:

Corn oil	1,000 parts
Potash lye, 24.5°Be.....	900 parts

Ox Gall Soaps

BEFORE concluding, brief consideration should be given to another type of specialized soap which is not often discussed. These are the various soaps made with ox gall or one of the bile salts derived from it. As explained by Schwartz, (18) stain removing and dry cleaning soaps may contain ox gall which, because of its enzymes and organic acids, can remove stains from fabrics. In some procedures, (24) an appropriate quantity of ox gall, sometimes concentrated and purified, is added to molten soap prior to cooling and hardening. Another method is to knead powdered hard soap with ox gall. Such a method is suggested in the following formula (21) for making ox gall bar soaps or spotting pencils.

Hard soap, powdered....	80 parts
Ox gall, concentrated....	20 parts

Knead to form a dough, press to the desired shape and immediately pack into tin foil or cellophane.

In some methods, the ox gall is replaced by bile salts, notably sodium cholate. It is said (21) that the addition of 0.25 per cent of this salt provides the detergent advantages of ox gall without the unpleasant odor of the natural product. If a bar or stick type product is desired, it can be made by compressing the following mixture:

Hard soap,	
finely powdered	98.5 parts
Sodium cholate	1.5 parts
Water	sufficient to make a stiff paste.

Of course there are various other specialized soaps on the market for use by the different industries. However, many of these soaps have

been considered, or at least touched upon, in other discussions or reviews in this publication.

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"First of all, the outstanding features of the Cleanwall Machine make a perfect sales story! When you can talk of saving 50% of time and labor . . . 90% of cleaning compounds . . . or the ease, convenience and simplicity of operation . . . you've got a sales story that hits home fast!

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Yes, the Cleanwall Machine is the right answer for your customers' wall washing problems . . . the fast, easy way to more sales and greater profits for you! Write today for complete information.



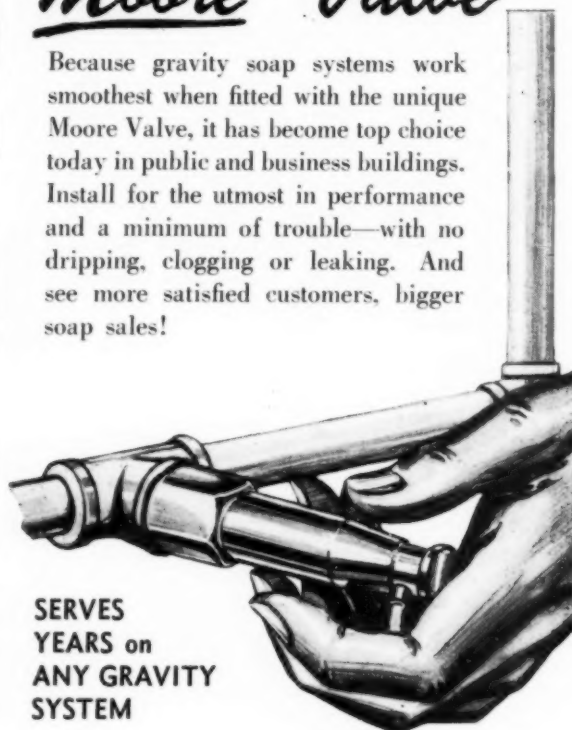
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West Names New Vice-Presidents



L. J. OPPENHEIMER



ALFRED K. KIRSH

WEST DISINFECTING CO., Long Island City, N. Y., recently announced the election of two new vice-presidents and a new director at a special meeting of the board of directors, Sept. 15. Leonard J. Oppenheimer, secretary of the firm, a post in which he will continue, and Alfred K. Kirsh, treasurer and general counsel for West, were named vice-presidents. In addition, Mr. Kirsh remains as treasurer and counsel. Both men continue as directors and members of the executive committee, to which John A. Manley, general sales manager and a director was appointed. The new director is Sylvan Coleman, a partner of E. F.

Hutton & Co., New York, stock brokers. M. M. Marcuse retains his post as chairman of the board. The special meeting was held to make the changes caused by the death, on Aug. 7, of John A. Marcuse, executive vice-president of West, a son of I. J. Marcuse, a director of the firm, and a nephew of the present board chairman.

In addition to his duties at West, Mr. Oppenheimer is vice-president of the National Association of Insecticide & Disinfectant Manufacturers, and a member of the steering committee of the bulk soap division of the Association of American Soap & Glycerine Producers.

Bauman to Commonwealth

The appointment of Harry H. Bauman as manager of the Youngstown, O., facilities of Commonwealth Sanitation Co., Pittsburgh, Pa., and affiliated concerns was announced recently by L. L. Crosby, president. A 1934 graduate of Ohio University, Mr. Bauman did post-graduate work in entomology at Ohio State University and attended the graduate school at Akron University. From 1942 until 1945, he served in the Army Medical Corps. In addition to his administrative duties as manager of the Youngstown office, Mr. Bauman will assist Dr. Robert E.

Evans, head of the entomological department of Commonwealth and its affiliated companies, in the direction of the firm's research laboratories and activities.

New Huntington Germicide

"Scento-Pine," a new disinfectant, deodorizer and cleanser was placed on the market recently by Huntington Laboratories, Inc., Huntington, Ind. A general purpose disinfectant, it is said to be effective against both fungi and bacteria in recommended use concentrations. According to the company, the new pine type

germicide has a coefficient of five against *E. typhosa* and seven against *S. aureus*. To make an effective germicide solution, "Scento-Pine" is diluted one part to 100 parts of water. The active ingredient in the new product is "Santophen 1," a recently developed substituted phenol made by Monsanto Chemical Co., St. Louis.

Goldberg Aids U.N. Group

Melvin Goldberg of Pesticide Advisory Service, New York, recently served as a consultant to the Economic Stability and Development Division of the Secretary General's Office of the United Nations in a survey on the availability of anti-malarial chemical insecticides throughout the world. The report was presented at the recent meeting of the United Nations Economic and Social Council held in Geneva. It is expected that the program for insect control will be included within the program of technical assistance when it is established.

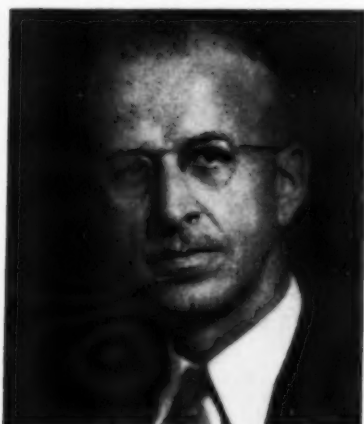
Household Insect Data

"Control of Common Household Insects" is the title of circular No. 171 recently published by the Connecticut Agricultural Experiment Station, New Haven, Conn. It contains 16 illustrated pages of common household pests. A discussion of insecticides for household use, divided into two sections; space sprays intended to kill flying insects and residual sprays used to coat surfaces, is included. The main section of the circular, dealing with descriptions and control methods, is divided into three parts: kitchen and pantry pests, pests of clothing and fabrics, and insects annoying man.

USDA Names Richmond

Roy C. Richmond, a biologist in the U. S. Department of Agriculture, was recently appointed leader in the Bureau of Entomology and Plant Quarantine's division of Domestic Plant Quarantine, it was announced by Dr. P. N. Annand, chief of the Bureau. B. M. Gaddis, who formerly led the division, died recently. Mr. Richmond had served as Mr. Gaddis' first assistant since 1938, when he first joined the Bureau. He is a native of

Perth, Ontario, Canada. Mr. Richmond holds a B. S. from Ontario Agricultural College and an M.A. from Colorado



ROY C. RICHMOND

State College. He instructed in entomology, as an assistant professor, at Texas Agricultural and Mechanical College during 1923 and '24. He was appointed deputy state entomologist of Colorado in 1924, and state entomologist of the state in 1936. During that time he was chairman of the Plant Quarantine Committee of the Western Plant Board. He was elected chairman of the Board in 1937. He became a naturalized citizen on January 8, 1932.

P.E.A. Hears McCutcheon

John W. McCutcheon, consulting chemist, was the guest speaker at the first fall meeting of the Professional Exterminators Association held recently at the Museum of Natural History, New York. Mr. McCutcheon spoke on "Emulsions and Surface Active Agents" following which a question and answer forum was held. A copy of Mr. McCutcheon's brochure on "Synthetic Detergents — Main Types, Uses, Properties, and Prospects" was distributed.

At a business meeting which followed the talk, arrangements were made for a short course on pest control problems to be given by the organization in the near future. Arrangements for the course were made by a committee which included, Ken Tompkins, Tompkins Exterminating Co., chairman; and co-committee members, Louis Simon, Alvin Weiss and David Cantor.

Hubman to Move

Hubman Supply Co., Columbus, O., has purchased the two-story building at 1123 W. Goodale Blvd., in that city and will transfer operations there as soon as improvements and installations are completed.

Hubman has operated for the past 20 years and manufactures and distributes soaps, cleaning materials and sanitary chemicals. They are factory representatives of heavy chemicals, cleaning tools and equipment.

Executive officers of the Hubman Supply Co. are W. C. Hubman, president; Erwin B. Collins, vice president, and Margaret M. Hubman, secretary-treasurer.

Sonneborn's New Offices

L. Sonneborn Sons, Inc., New York, recently announced the removal of its executive and general offices for all divisions excepting building products to 300 Fourth Ave., New York 10. The telephone number of the new office is ORegon 3-6000.

New Moore Dispenser

A new and improved version of its "Tanc-Typ" liquid soap dispenser was announced recently by Moore Brothers Co., New York. Designed for heavy duty use, the new dispenser's chief improvement is in the valve, which now has a chrome-plated bronze body, a stainless steel plunger and a "Neoprene" washer. The tank body is all white, of 20-gauge steel, double-coated with vitreous enamel.

The new unit is available in two types: "No. 500" for liquid soap, and "No. 550" for dispensing lather from liquid



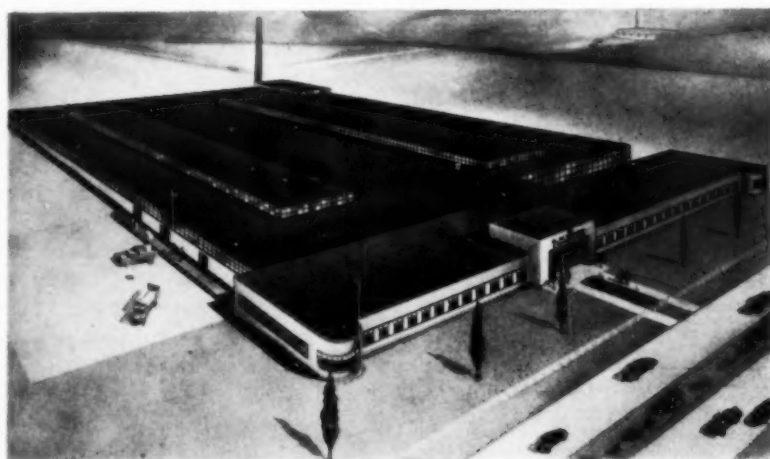
New "Tanc-Typ" Dispenser

soap. Each is of 40-ounce capacity. The new dispenser can be installed quickly on any washroom surface by means of bracket holders that are part of the tank.

Abrams a Consultant

Dr. Edward Abrams, formerly head of the biology division of the Institute of Textile Technology, Charlottesville, Va., for the past three years, recently announced that he has set up a consulting firm known as Laboratories Research in Mamaroneck, N. Y. He is specializing in the fields of pre-

Architect's drawing of how the new sanitary products plant of G. H. Wood & Co., Toronto, will look upon completion.



vention of microbiological deterioration of organic and fibrous materials, general bacteriology and biochemical problems. Before joining the Institute of Textile Technology, Dr. Abrams was head of the microbiological and microscopy laboratories at the Bureau of Standards of the Department of Commerce, Washington, D. C.

Tolerance Hearings Jan. 17

Public Hearings on proposals to establish tolerances of insecticidal and fungicidal residues on fresh fruits and vegetables will begin on Jan. 17, 1950, according to a recent announcement by the Federal Security Agency, which will conduct the hearings. The hearings are scheduled to be held in room 5140 of the Federal Security Building in Washington, D. C. Among the points which will be covered at the hearings are:

On the basis of evidence, if any, it is planned to promulgate regulations limiting the quantity of toxic residues as are required on or in certain fruits and vegetables, individually or by class, the amount of the various substances tolerated to be fixed in terms of parts by weight, or by setting such limitations as is shown by the evidence to be necessary for the protection of the public health.

A third course, may be the repeal or amendment of the regulation limiting the quantity of fluorine remaining as insecticidal residue on fruits so as to bring it into harmony with other regulations to be adopted.

Warwick Adds to Line

Warwick Wax Co., subsidiary of Sun Chemical Corp., Long Island City, N. Y., was recently appointed exclusive distributor of paraffin produced by the Coffeyville, Kans., refinery of Consumers Cooperative Association, Kansas City, Mo. Paraffin units of the CCA were to go into production during the last quarter of this year. Over two million dollars was invested by the cooperative in the new plant to improve grades of lubricants and simultaneously produce high grades of paraffin. Fully refined paraffin in ranges from 128° to 165° is being produced.

Cook Names Agent

Advertising on "Cook-Kill" household and industrial deodorant is now being handled by Gardner Advertising Co., St. Louis, it was announced recently by Cook Chemical Co., Kansas City, Mo.



WILLIAM R. HUGUENIN

In Stokes & Smith Post

The appointment of William R. Huguenin as manager of Stokes and Smith Co., Philadelphia, subsidiary of

Food Machinery and Chemical Corp., San Jose, Calif., was announced recently. He succeeds Gerald F. Twist, who has been named manager of FMC's Peerless Pump Division at Los Angeles. Mr. Huguenin was formerly in charge of Food Machinery's central export department at San Jose.

C. W. Pencille Dies

Chester W. Pencille, 46, president of Guarantee Fumigating Co., Los Angeles, and an active member of the National Pest Control Association, died recently. He had been severely injured in 1947, when he was blown through the stucco wall of a house in Los Angeles in an explosion. He was a pioneer in fumigating operations.

Folder on Termites

A new eight-page circular on termite control was issued recently by the Connecticut Agricultural Experiment Station, New Haven. The bulletin was written by Neely Turner, entomologist at the Station. Determination of the presence of termites, control methods and specifications for termite resistant construction are covered.

Bridgeport Appeals Aerosol Ruling

AN appeal to the United States Circuit Court of Appeals was taken recently by Bridgeport Brass Co., Bridgeport, Conn., in an effort to have a decision involving patents on the aerosol bomb reversed. Earlier, Judge Carroll C. Hincks of New Haven dismissed the suit which was brought to trial in the United States District Court by Bridgeport charging patent infringement to Bostwick Laboratories and its parent corporation, Connecticut Chemical Research Corp., both of Bridgeport. Bridgeport charges that Bostwick has infringed the key Rotheim patents, which are said to be the basis of the practical application of the aerosol principle.

Bridgeport Brass Co. acquired title to the Rotheim patents, which showed how certain materials and liquid gas under pressure could be mixed. Earlier, chemists in the U. S. Department of Agriculture revived the 10-year-old discovery of Erik Rotheim,

the Norwegian chemist. He had learned how to release the liquid gas in small quantities, a discovery, which coupled with the release mechanism or valve, forms the basis of the aerosol principle. The final step in making the aerosol idea practical, in demand for use against insects by our troops in the Pacific, was the designing and production of a container, small enough to be carried. Bridgeport aided in this work in cooperation with government people and contributed its industrial experience and background in the successful design and production of tire valves.

Two previous patents, one dating back to 1899, were the basis of the ruling of the Court in the decision finding the patents held by Bridgeport to be invalid and consequently not infringed. At the time, Bostwick announced that it was entering a counter claim, asking for an injunction against alleged unfair trade practices and \$100,000 in damages.

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New Bobrick Dispenser

Bobrick Manufacturing Corp., Los Angeles, recently announced that it had gone into production on a new, lather type, liquid soap dispenser. The new unit, known as "Bobrick 44," is made of highly polished stainless steel with a shatterproof, translucent plastic container that permits the soap level to be observed at all times. The dispensing mechanism consists of a non-corroding stainless steel piston, located above the soap level, thus eliminating possible leakage or dripping. The valve has three parts; only one spring is used. The mechanism is completely demountable and may be replaced. The steel wall fastening is concealed and, by use of the "WallPlad," which is furnished with the dispenser, the unit can be attached to hard surface walls with or without screws. The new "Bobrick 44" dispenser is identical in appearance with the liquid soap model designated "Bobrick 24."



Welsh Aerosol Paper Author

In the article, "Aerosol Symposium," appearing in our August issue, we erroneously listed A. C. Miller of Gulf Research & Development Co., Pittsburgh, as the author of "Insecticidal Aerosol." Actually, T. B. Welsh of Gulf Oil Corp., Pittsburgh, wrote the article, which was presented as a paper read by Mr. Miller at the June meeting of the National Association of Insecticide & Disinfectant Manufacturers in Chicago.

AEPCO Hears Hamilton

H. W. Hamilton, head of the New York firm bearing his name, and secretary of the National Association of Insecticide & Disinfectant Manufacturers, spoke on "Some Manufacturing, Selling and Control Problems in the Economical Distribution of Household Insecticides" before the third annual convention of the Association of Economic Poisons Control Officials. The

meeting was held Oct. 8, at the Shoreham Hotel, Washington, D. C. Also scheduled to speak at the meeting were Lea S. Hitchner, executive secretary of the National Agricultural Chemicals Association. He discussed "The National Agricultural Chemicals Association Looks at Residue Tolerance Hearings." Other papers on insecticides were to have been presented by Paul B. Dunbar, Commissioner of Foods and Drugs of the Food and Drug Administration whose topic was "The Food and Drug Administration Looks at Insecticides." C. H. Mahoney, Director of the National Canners' Association, spoke on "Problems of the Canner with Respect to the Use of Insecticides."

Heal NPCA Tech. Director

Dr. Ralph E. Heal, senior entomologist and head of the entomological laboratory, research and development division of Merck & Co., Rahway, N. J., recently was appointed technical director of the National Pest Control Association, with headquarters in Brooklyn. He had been with Merck from 1942 until his recent appointment by NPCA. Previously Dr. Heal had been at Rutgers University from 1935-'38 and 1939-'43 on industrial research fellowships for Monsanto Chemical Co., Bristol-Myers Co. and Merck & Co. He received his M.S. from Rutgers in 1935 and his Ph.D. in entomology in 1942. Dr. Heal holds a B.S.A. degree from the Ontario Agricultural College, Toronto.

Lehn & Fink Earnings Up

Lehn & Fink Products Corp. and domestic subsidiaries, Bloomfield, N. J., recently reported a substantial increase in its net profit for the year ending June 30, as compared with the previous fiscal year. A net profit for the year ending June 30, 1949, of \$440,647, equal to \$1.10 a share on sales of \$15,763,310, as against earnings of \$119,017, equal to 29 cents a share on sales of \$14,903,989, was reported. Working capital on June 30, 1949, was \$5,124,325, against \$5,065,698 a year earlier.

New Floor Machine

A new, improved floor maintenance machine, designed for dry or wet cleaning and maintenance operations on a great variety of floors, was announced recently by American Floor Surfacing Machine Co., Toledo, O. The machine is available in a new range of sizes, including 14 and 16 inch brush sizes. Other features of the new machine, which is fitted with polished aluminum castings throughout, include an adjustable handle that can be set at any desired angle through a full 90 degree swing, a new main frame that has been redesigned with a new, easily replaceable rubber bumper guard and a new wrap-around hook for handling slack or storing trailing wire. The 16 inch machine is powered by a half horsepower motor and the 14 inch model has a one-third h.p. motor. Brush speed is 172 r.p.m.

New floor maintenance machines at right are designed for dry or wet operations. They were announced recently by American Floor Surfacing Machine Co., Toledo. They come in 14 and 16 inch brush sizes.





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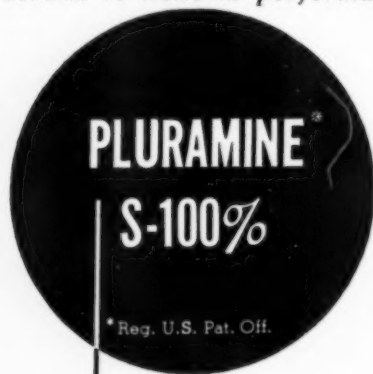
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Insecticides Here to Stay, And Grow, Says J. J. Davis

DR. J. J. DAVIS, Chief in Entomology at Purdue University, Lafayette, Ind., and widely known in the insecticide and pest control fields, recently stated that insecticides are not only here to stay, but if manufacturers put out reliable products, their use will continue to grow in years to come in spite of improved sanitation and insect infestation prevention in the food industries. In a letter taking issue with an editorial in the September issue of *Soap & Sanitary Chemicals*, Dr. Davis labeled its attitude on the future of insecticides as too pessimistic. He stated:

"I read with interest your editorial in the Sanitary Products Section of the September issue. It seems to me you have a too pessimistic attitude. There is no question but that sanitation in food-processing plants is being emphasized, but certainly that does not mean that it will result in a decreased use of insecticides. The reverse is probably true.

"Let me give you my experiences beginning over 10 years ago to substantiate my thoughts. Early in my entomological career I was concerned with the control of cereal and forage crop insects. For such extensively grown crops as wheat and corn, the use of insecticides was unthinkable because of costs and the farmer was dependent on farm practices for insect control, and for the most part these were good farm practices regardless of insect control. Thus from my early experiences I learned to depend greatly on farm practices. Later I studied orchard insects and here again I found that insecticides alone were not the solution to the problem and that good orchard practices were essential to insure best use of insecticides. The same was true with vegetable crop insects. Even with intensively grown crops, such as those grown under glass where the value of the crop warranted extensive use of insecticides, we found that best results in insect control were possible only by using good greenhouse practices along with insecticides.

"And now we find a more complete control of insects in and about food-processing establishments is essential, not only because of requirements of the Food and Drug Administration but because of the public interest in clean food products. I can remember the time when we went to the corner grocery for oatmeal and it was dished out of a barrel. If at breakfast we found a flour beetle in our oatmeal we simply flipped it out and proceeded with our meal. Nowadays, a flour beetle

in our breakfast food would spoil our meal.

"With such a situation the food-processor is behind the 8-ball and must use every precaution to avoid insect contamination of his products. Certainly clean-up, sanitation and the like are at least as essential as insecticide treatment and must be more and more strongly stressed. But that does not mean the use of insecticides is not needed. They are essential, and it is my opinion that the use of insecticides will increase and work hand in hand with sanitation practices.

"Let us not get the idea that sanitation in food plants or good practices in crop and animal production is the solution to the insect problem, nor that insecticides alone are all that is necessary. Pest control depends on a well-balanced program, using all available means of protection.

"It should be remembered that sanitation and good farm or food plant practices are good practices regardless of the pests. They produce conditions unfavorable to insects. At the same time no economic entomologist would think of recommending such practices to the exclusion of insecticides, excepting in a few cases where insecticides are impractical, as in the case of the Hessian fly where the date of sowing wheat is an essential practice and where insecticides would be out of the question.

"It is true we may find decreased demands for insecticides in some areas, but think of the new fields not heretofore explored. For example, canning plants have not been large users of insecticides, but they are now beginning to realize their importance in canning operations. I will enclose a statement I prepared this last spring to aid Indiana tomato canners in maintaining their food plants in a condition satisfactory to the Food and Drug Administration. While we emphasized sanitation as such, you will see our recommendations include the use of insecticides where they were little used heretofore. Let's not worry about a few lost fields for sales but explore the new fields.

"The development of new and more efficient insecticides has been of considerable concern to pest control operators. They have felt that such wonderful materials for insect control would soon put them out of business. I recall one prominent pest control operator told me his father was certain his business was ruined when Flit came onto the market and yet his business actually increased. The same type of observations were made with the advent of the several important organic insecticides. The pest control operators have failed to realize that 70 per cent of control is the "know-how" and that their services will always be in demand as long

as they have the "know-how" and apply their knowledge accordingly.

"It seems to me insecticide manufacturers should not be given to believe their industry is declining because of the use of sanitation and farm practices, as indicated in your editorial. If the insecticide manufacturers put out dependable merchandise, I'm sure they can anticipate an increase in the demand for their products."

Kelley BIMS Winner

James P. Kelley of Thomas Leeming Co. was the winner of first low net prize at the final golf outing of the year held by the BIMS of Boston at the Nashua Country Club, Nashua, N. H., on September 27. Warren E. Johnson of U. S. Industrial Chemicals, Inc., Boston BIMS chairman, was winner of second low net. First kickers prize went to Benjamin F. Sands of Lewis & Co. and second kickers to Herman G. Carr of Deerfoot Farms, Inc. One of the largest groups of the season turned out for the tournament and the dinner which followed. Plans for the winter program will be announced in the near future by Mr. Johnson.

Lindane on Dairy Cattle

The use of lindane, the pure gamma isomer of benzene hexachloride, has also been recommended for use as a residual spray for fly control in dairy barns by entomologists of the U. S. Department of Agriculture, according to a recent release. Its use on dairy cattle for insect control or its use on forage fed to dairy cattle or animals being finished for slaughter has not been recommended until further research on its toxicity has been completed. The use of methoxychlor, as a residual spray, and pyrethrum or organic thiocyanate space sprays instead of DDT inside dairy barns and milk processing plant was recommended earlier this year.

Brunton Joins Kolker

J. G. Brunton, formerly sales manager of the agricultural chemicals division of Pennsylvania Salt Manufacturing Co., Philadelphia, was recently named vice-president in charge of sales for Kolker Chemical Works, Newark, N. J.

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A.P.H.A. Meets Oct. 24-28

PAPERS dealing with insect control, chemicals introduced in production and processing of food, toxicity of surface active agents, air disinfection, control of airborne infections and mold control were scheduled for presentation at the 77th annual meeting of the American Public Health Association. This year's meeting is being held in New York, Monday through Friday, Oct. 24-28. More than 100 exhibits will be shown, a number of which are sponsored by firms in the soap and sanitary chemical fields. Most of the meeting sessions will be held in the Hotels Statler or New Yorker, the former housing exhibits and registration desk. The health aspects of chemicals introduced in foods will be discussed at the Food and Nutrition sectional meeting, Tuesday, Oct. 25, at 2:30 p.m., starting time of all afternoon sessions, at the Hotel Statler. Papers covering chemicals introduced in the production and processing of foods, another titled, "Protection Afforded the Consumer" and a final one by Charles Wesley Dunn on the "Application of the Federal Food, Drug and Cosmetic Act to Added Chemicals in Foods for Public Health Protection" were to be read.

At a joint session of the Engineering Section and the Inter-American Association of Sanitary Engineering, papers dealing with global control of insects were listed on the program. They included: "Advancing Frontiers in Insect Control"; "The Malaria Control Activities of WHO"; "Domestic Insect Vector Control in Venezuela"; "Anopheline Eradication in Sardinia," "Insect Vector Control Activities by the U. S. Public Health Service" and "Fly Control Techniques."

"Toxicity and Toxicology of Surface Active Agents" was to be covered in a paper at the Industrial Hygiene Section meeting at the Hotel Statler on Thursday afternoon.

Air sanitation was to be discussed in a joint session of the Engineering, Epidemiology, Industrial Hygiene and School Health Sections and the American School Health Association at the Hotel New Yorker on

Friday afternoon. Papers listed for presentation at that session include: "Factors of Importance in the use of Triethylene Glycol Vapor for Aerial Disinfection" and "The Present Status of the Control of Airborne Infections." The latter is a report of the subcommittee on Air Sanitation of the Committee on Research and Standards.

"Bacteriological Aspects of the Study of Ultraviolet Irradiation in Large Central Rural Schools" and "Mold Control by Germicidal Ultraviolet Energy" are two of the papers to be read at the Laboratory Section meeting on Friday afternoon, Oct. 28, at the Hotel New Yorker.

Among the exhibitors of soaps and sanitary chemicals at the meeting are: Auto-Chlor System, Inc., Memphis; Bristol-Myers Co., New York; Diversey Corp., Chicago; Economics Laboratory, Inc., St. Paul; Klenzade Products, Inc., Beloit, Wis.; Procter & Gamble Co., Cincinnati; Winthrop-Stearns, Inc., New York, and Wyandotte Chemicals Corp., Wyandotte, Mich.

Charter "Marine Chemist"

Dow Chemical Co., Midland, Mich., has chartered the newly converted tanker, "Marine Chemist," for ten years from the Marine Transport Lines, Inc., New York, to transport various liquid and dry chemicals between East Coast ports. The "Marine Chemist," recently renamed and completely refitted especially for shipment of liquid caustic soda, glycols, carbon tetrachloride, ethylene dichloride and other solvents, as well as dry cargo, is 463 feet long, 64 foot beam, and 28 foot draft, 8,137 gross tons, equipped with 4,000 H.P. turbines. She can carry 13,000 tons of combined liquid and dry cargo. She was built by the Bethlehem Steel Co. in 1942 and also converted to a chemical carrier by this company. The "Marine Chemist" is the first ocean-going ship to be designed and used especially for bulk chemical transportation. Her East Coast terminal is the new Dow tank farm at Carteret, N. J. She will make

her maiden voyage for Dow this month from Freeport, Texas.

CINERIN I HOMOLOG

(From Page 121)

it can be substituted for natural pyrethrum in existing insecticide formulations is unfounded.

(2) Careful, thorough, entomological investigations of the behavior of the new synthetic compound against specific insects and under the recommended conditions of use must be undertaken to develop uses in insecticide formulations and to permit due allowances in such formulations to take advantage of the peculiar properties of the compound.

(3) There can be no assumption that the chemical is toxicologically as safe as natural pyrethrum until the matter has been studied with due allowance for the impurities which may be present in the commercially prepared material.

(4) In spite of the fact that more complete entomological study has disclosed facts which are, to some degree, disappointing and disillusioning as compared with the expectations aroused by the earlier announcements, it is apparent that the completely synthetic allyl compound has a high degree of effectiveness against many species of insects and fully warrants further investigations, which are required as a precedent to its effective utilization.

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